THIS WEEK'S National Petroleum NEWS

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Virginia Oil Men's Association, Charlottesville, Va., Oct. 16, 17.

American Institute of Mining and Metallurgical Engineers, Petroleum Division, Room 517, 510 West 6th St., Los Angeles, Oct. 17.

National Association of Credit Men, Petroleum Refiners Division, St. Louis, Mo., Oct. 20, 21, 22.

Oil & Gas Well Supply Traffic Association, Palmer House, Chicago, Oct. 21, 22.

Wisconsin Petroleum Association, Loraine Hotel, Madison, Wis., Oct. 22.

Texas Petroleum Marketers Association, Mineral Wells, Tex., Oct. 23, 24.

Independent Petroleum Association of Texas, San Antonio, Oct. 27

Independent Oil Men of America, Marketing Congress and Exhibit, Statler Hotel, St. Louis, Mo., Nov. 2, 3, 4, 5.

American Petroleum Institute, Stevens Hotel, Chicago, Nov. 10 to 13.

Oil Trades Association of New York, Hotel Roosevelt, New York City, Nov. 12.

American Oil Chemists Society, Congress Hall, Chicago, Nov. 13, 14.

Nebraska Independent Oil Men's Association, Paxton Hotel, Omaha, Dec. 2, 4.

Indiana Petroleum Association, Hotel Severin, Indianapolis, Ind., Dec. 3, 4.

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The 1930 International Petroleum Exposition

In stature, man dwarfs into insignificance beside new types and models in refining and production equipment on exhibit at the Tulsa exposition.

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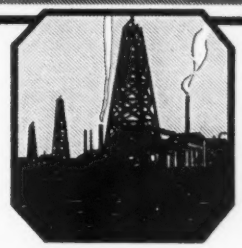

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Vol. 22 **CLEVELAND, October 15** **No. 42**

«Expo» to Stimulate Oil Industry's Buying of Equipment in 1931

By V. B. Guthrie
N. P. N. MANAGING EDITOR

TULSA, Oct 15

EQUIPMENT and materials that lead to greater operating efficiency are going to have the buying attention of the oil industry in 1931.

The market the oil industry is thus going to create is going to be considerably larger than for 1930, for several reasons.

Observations at the Tulsa oil exposition—just closing today the most successful of its seven shows—and interviews with oil company executives who have to do with purchasing, and with exhibitors, call forth the statements above.

The success of the 1930 exposition in itself indicates that the petroleum industry and the equipment manufacturers closest to it do not hold the saffron tinged views regarding the immediate business possibilities in the industry that were shared by some who traveled from the east to Tulsa for exposition week. The farther from the east a man came, the gloomier his outlook seems to have been, before he reached Tulsa.

The petroleum industry, and the manufacturers in numerous lines who cater to its needs, put $13,000,000 worth of equipment into the exposition this week, for display purposes alone. This does not include any part of the expense of maintaining the exposition grounds and buildings.

These same men spent another $1,200,000 in packing and shipping and erecting their exhibits on the exposition grounds and in returning it to their factories, the exposition management estimates; to say nothing of the expense of maintaining staffs of a dozen men, in some individual cases, to properly present those exhibits to the oil industry.

In a period when some of us have gloomy forebodings about the business outlook ahead that keeps us from enjoying a hearty breakfast when we get out of bed, nearly 800 exhibitors at the Tulsa oil show made 24 acres of ground space tingle with business life during the week of the show.

Many of these exhibitors had sufficient confidence in the oil industry and its really wonderful exposition to make their reservations for exhibit space for the next International Petroleum Exposition, before they left Tulsa.

During the eight days of the exposition, twenty-five thousand persons actively connected with the oil industry were sufficiently concerned in the immediate future of that industry to visit the exposition to see what new in the way of operating equipment is being offered for its use.

These 25,000 visitors registered, giving their active business connection. Others visited the grounds but did not register; and, as usual, there were many thousands of visitors who are outside the oil industry. On Wednesday, for example, over 23,000 people visited the grounds.

To go back to the 1931 market the oil industry offers, a combination of circumstances will tend to make that exceedingly attractive—and profitable—to those manufacturers who have worked the past two or three years to improve their product in keeping with the needs of the oil industry.

First, and perhaps most important in this chain of circumstances, is the high degree of competition existing in the oil industry now, a higher pitch than ever before. That competition manifests itself in the struggle to produce a better product than other companies, and to produce it and market it

Tall derricks gave an oil field atmosphere to the exposition

at a lower cost than other companies.

The race is such now that the oil company that drops out is virtually lost in the battle for business and down the line from the drilling of the well to the operation of the gasoline station, the oil company is looking for equipment that will allow it to operate at a greater degree of efficiency. Even though the initial cost of that equipment is relatively large it is small beside the investment of the oil company in the business all told.

For example, a refinery engineering firm at the Tulsa exposition said it had today more inquiries, and more business in sight, for vapor recovery plants and absorption plants at refineries than a year ago. Vapor recovery plants cost considerable to install, but they mean a lower cost of manufacturing gasoline over a period of years. Another manufacturer of rotary pumps for refinery use said his unfilled orders today were 65 per cent larger than a year ago at this time.

Among the exhibitors of drilling equipment, in another case, at the exposition this year only one steam engine was functioning and but one boiler was on display, while previous shows have had a preponderance of steam engines for drilling. In their place were the diesel engines and gas and gasoline internal combustion engines. Most of these have a greater initial cost than the steam engine; but their manufacturers claim that the additional outlay is more than offset with savings made in operation.

In the marketing branch of the industry, the competition for the ultimate consumer's dollar is making itself felt in other ways than in opening more gasoline stations and in keeping more salesmen on the road to move goods.

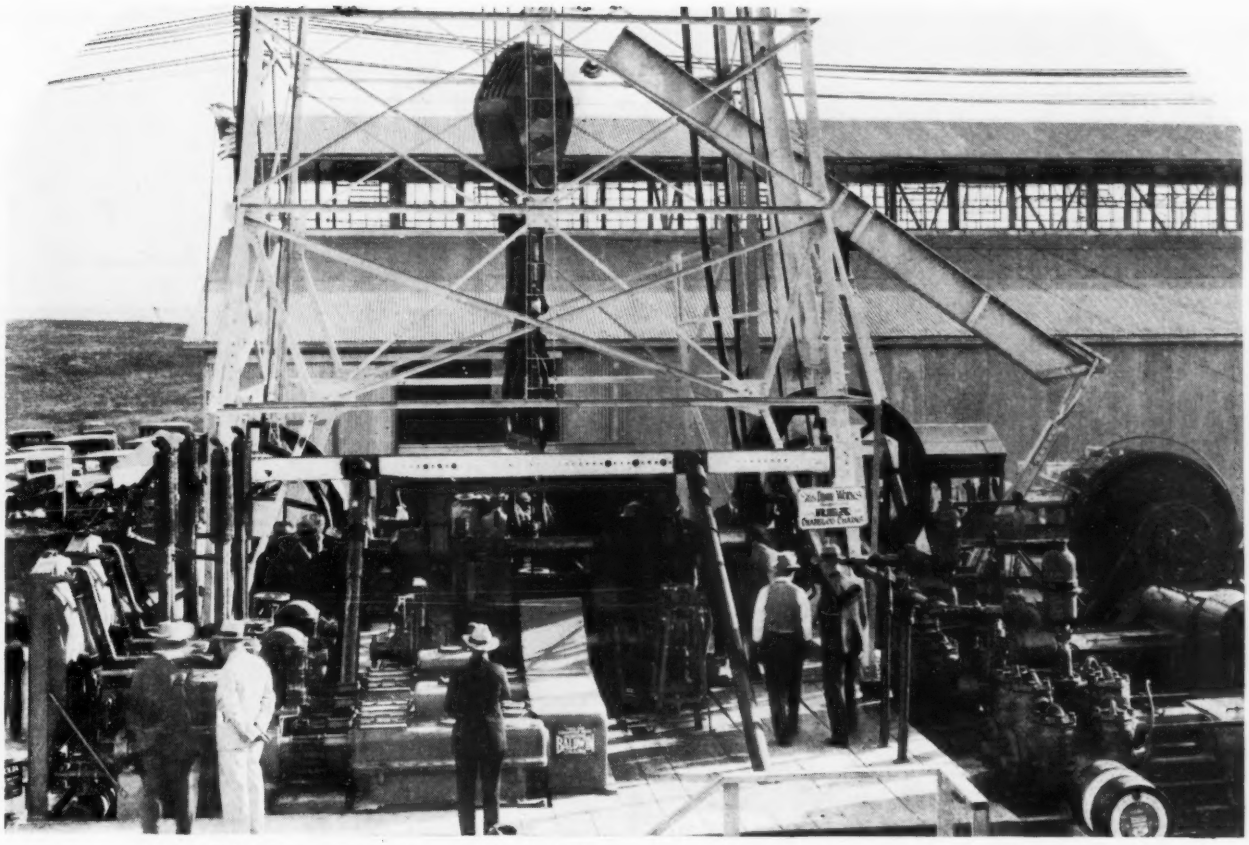
Service to the motorist is looked upon today as one strong argument to hold his business and that service figures down to the minutes—virtually seconds—of the motorist's time that can be saved while serving him at the station.

At the Tulsa exposition the equipment that means better, or quicker, service to the motorist received a degree of attention that made its exhibitors optimistic over the business outlook for next year. New electric meter gasoline pumps, high speed trucks, 1000-gallon underground station tanks for metropolitan areas, modern lifts in place of pits or home-built racks for greasing, new greasing equipment, were all studied by oil company representatives as considerations for the 1931 purchasing schedules.

Another circumstance that is tending to make the oil industry a good market for equipment in 1931 is the fact that the good engineering brains which have been quietly at work in the oil equipment industry the past few years is now beginning to show results in the form of more efficient equipment.

Up to a few years ago, the equipment used in the producing industry, and in other branches of the industry to a considerable extent, had not changed in principle. The old types had been made larger or strengthened to meet new demands but that was about as far as changes went.

Starting with about the first of the oil expositions, more engineering attention began to be focussed on the oil industry's equipment, however. The exposition this year was distinctly more of an engineering achievement than ever before, and the oil industry on its own part is becoming more engineering



Modern heavy duty rotary drilling equipme nt, powered by internal combustion engines

minded. It looks at new equipment in the light of its operating costs, service and general efficiency rather than initial cost. The trend in the industry is towards scientific operation and away from precedent, which will have its effect on oil company purchasing even in 1931.

For example, electric automatic devices for automatic control of oil field operations are now at hand. They have been adapted to the refining industry for some few years, but they are new in oil fields. By their use, as demonstrated at the exposition, oil can be pumped from a well, gauged in a tank, put into the pipeline and pumped to a distant station without a man on the lease.

All the necessary operations can be controlled from an electric panel in the district office. Every conceivable contingency has been provided with automatic alarms. A blown gasket, heated bearing, a clogged line, will break or close circuits to stop motors and pumps. At the same time a bell rings in the office of the lone operator to tell him trouble is afoot.

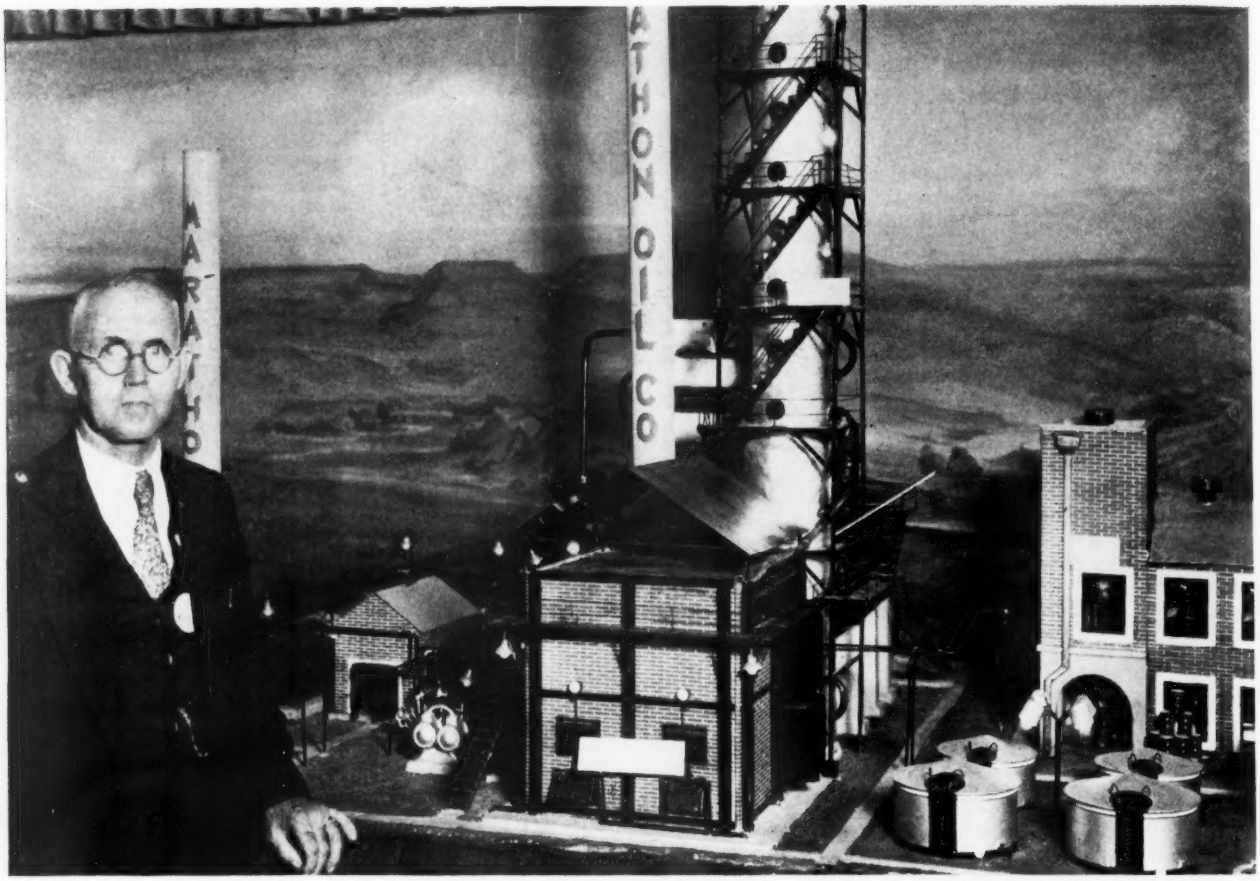
The practicability of such devices has already been proven in the field and their general use seems only a question of time.

Obsolescence of equipment is another factor that is going to influence the oil industry's buying in 1931, as it can be reflected from the 1930 Tulsa exposition, and that obsolescence is going to be stimulated, if anything, by the extent to which engineering is being applied to the industry, to the refining and natural gasoline branch of the oil industry, the term obsolescence is nothing to be shied away from, as it is in some industries. The refining company which has stayed in business long ago learned to accept that manufacturing principle. New plants have been built as new oil fields were discovered and as markets enlarged. Into their construction went new ideas and new equipment. New methods and processes were discovered, which meant new products and the company which could not manufacture them was at a disadvantage in the struggle for business.

Oil company purchasing agents and executives visiting the Tulsa exposition said their normal replacement market the coming year would be stimulated through new and improved types of equipment on exhibition there. One executive said his normal truck purchases were at the rate of 150 a year. In 1930 he bought less than his normal replacement but he said he could not hold off longer without running up his costs too greatly, due to the use of inefficient equipment. He said, after visiting the exposition, his order for new trucks would be larger in 1931 than he anticipated when he came to Tulsa, and much larger than in 1930.

Other oil company executives said their 1931 buying would be in larger volume than this year, due to the fact better prices could be secured now for materials and equipment, particularly when bought in large orders.

Throughout the entire exposition there was more stress put on materials, their quality and strength, than ever before. Derricks, pipe, tools, and all other oil field goods have been made stronger through the use of better steels in their manufacture. This change was necessitated by the progress in drilling methods and the conditions under which the present deep operations are carried on. Not only



Complete in every detail, and in actual operations, was this model cracking unit displayed by the Marathon Oil Co., subsidiary of the Ohio Oil Co.

Mischievous monkeys, chattering parrots gave a tropical atmosphere to the exhibit of the Republic Venezuela. There was a relief map of the Maracaibo Basin fields

have manufacturers built for the current needs but they have anticipated the requirements of the future. Depths up to 10,000 feet were discussed in a normal tone of voice, and equipment was labeled as being capable of making such holes. It is not surprising then that materials should be important and that supply men should accent them in discussing their products.

Displays of pipeline equipment attracted many visitors who are directly concerned with the problem of transportation. This end of the business is more active right now than in any recent year, what with big expansion of natural gas into new territory, construction of lines for carrying gasoline and two major oil line projects under way. The design of pipeline pumping stations is undergoing a change in the direction of automatic control, and executives of pipelines and those directly charged with the operation found much to attract them.

In general the refining and natural gasoline manufacturing equipment on display showed a trend toward refinement and ease of operation and maintenance. Valves with adjustable plugs, a new stabilizer from which the trays may be easily and quickly removed from the top are examples of the efforts manufacturers are making to increase the simplicity of operation of their products.

One such example on display was a new steam condenser type fitting on which the return bends are flanged and bolted to the tubes, making it easy to remove any part of the assembly. The bends rest one on the other, eliminating the use of a header sheet. The fittings, which can be made up in any material specified, are also applicable to low pressure still work, by substituting screws for the bolts and nuts.

It was apparent that the metallurgists and chemists had been called in to aid in designing much of the equipment. Corrosion-resisting alloys, and corrosion-resisting preparations and paints were well represented at the show, both by the equipment manufacturers and the metal and paint manufacturers.

Simplicity of design, sensitiveness to control, and rugged construction are the three cardinal points toward which designers of refining and natural gasoline plant equipment are working. No where is this better illustrated than in the control room, for which the Scientific and Technical Building had many exhibits. In the opinion of exhibitors and visitors alike the technical and instrument exhibits far surpassed the previous years.

Sinclair Wins First Aid Contest

TULSA, Oct. 11.—Sinclair Oil & Gas Co. first aid team from the Healdton district emerged winner of the sixth annual first aid contest held during the exposition. Second place among the 14 teams, representing as many companies, went to the Humble Oil & Refining Co. team from Baytown, Texas. Third place was captured by representatives of the Freeport Sulfur Co., Freeport, Texas.

The Sinclair team was also awarded the first prize in the resuscitation contest, which was run off separately. Four teams tied for first place in the latter contest, the first place going to Sinclair under the ruling which provides that, in the event of a tie, the award shall go to the team having the highest standing in the general first aid contest.

By winning both contests, the Sinclair team members took down several prizes. They received a cup, put up by the exposition, which they retain for a year; they get gold medals from the Mid-Continent Oil & Gas Association, silver medals from the National Safety Council, and first aid kits from the Mine Safety Appliances Co. The winning team members are: J. L. Ashford, captain; L. C. Jones, Flave E. Space, Ambrose Nichelson and J. A. Stribling.

Two other industries were represented in the contest for the first time. The Freeport Sulfur Co., of Freeport, Texas, had an entry, and although this was the team's first start in such fast company, it was good enough to take third place in the first aid contest.

Another newcomer to the first aid contests which have become a feature of the exposition was the Dewey Portland Cement Co. from Dewey, Okla. The state of Illinois was represented for the first time by a team entered by the Ohio Oil Co. The Ohio company had two teams entered, one from Sandoval, Ill., and the other from Shreveport.

A judge looks over a neat job of bandaging in one of the first aid contests at the exposition

Analysis of Crude from New Wildcat

TULSA, Oct. 11

LABORATORY analysis of the crude oil from the Mid-Kansas Oil & Gas Co. No. 1 Messer has been made. The well is a Wilcox sand wildcat a few miles southwest of Edmond, and about 15 miles north of production in the Oklahoma City pool. Highest production of the well was about 700 barrels daily. Sand conditions and structural position have caused the well to be regarded by many as a possible pool opener of importance. The analysis follows:

Gravity—35.9 Color—Green Sulfur—0.19% B. S. & Water—0.2%.

Distillation Summary

Product	%	Grav.	IBP	MBP	Flash	Fire	Pour Test	Color	Visc.
Gasoline	14.00	61.3	130	416	.....	.....	.....	.....	.....
Naphtha	6.38	51.0	250	430	.....	.....	.....	.....	.....
Kero. Dist.	21.04	41.5	.....	.....	150	170	.....	.....	.....
Gas Oil	12.82	35.1	.....	.....	220	245	.....	3-L	.....
Wax Dist.	19.00	30.3	.....	.....	345	390	65	3-D	82@100
Cyl. Stk.	23.25	19.8	.....	.....	515	600	45	Green	185@210
Loss	3.51	.....	.....	.....	.....	.....	.....	.....	.....

German Fields Wait Outside Capital

TULSA, Oct. 11.—Germany's oil resources await for development the entrance of outside capital in the hands of experienced oil men, Alfred Wirth, largest manufacturer of oil field equipment on the continent of Europe believes. He visited the International Petroleum Exposition in Tulsa the past week.

The head of Alfred Wirth & Co., Erkelenz, says that the possibilities appear to be great. German production has been associated with the salt dome type of structure and such discoveries as were made years ago—beginning, in fact, about the time of Drake's well—were on the west side of such domes. In the past three years wells of the gusher type have been drilled both on the east and west sides of dome structures.

"Indications have been found over a large area," Mr. Wirth said. "The chief difficulty, aside from financing, is depth. We doubt that the rotary type of drill will be successful and the equipment we make will not penetrate the very hard formations that will be encountered. There is a large mechanical problem involved that will have to be overcome before our development can go far."

Mr. Wirth asserted that the government would not undertake the exploratory work and, he said, it would be difficult for a German citizen to obtain financial backing in his country. Germans are not experienced in oil and it would be difficult, for this reason, for one of them to inspire public confidence in his undertaking.

Some trouble will be experienced by the foreigner in assembling acreage, as it is held in small parcels and some public distrust will have to be overcome, Mr. Wirth said. In Hanover mineral rights accrue to the owner of the surface and the same is true of some other states, but in others the state itself has reserved the minerals. There are no federal ownerships.

Alfred Wirth, head of Alfred Wirth & Co., Erkelenz, Germany, largest manufacturer of oil field equipment in continental Europe

Commission to Investigate Crude Discrimination

By Telegraph

HOUSTON, Oct. 14—An extension to the entire state of the hearing set for Oct. 22 on alleged discrimination in oil purchases was made in an order issued by the state railroad commission today. The original complaint was filed by Wichita Falls district operators through the North Texas Oil & Gas Association as described on page 43 of this issue. All pipeline companies in the state are cited to appear under the amended order.

Cordell to Head Refinery Operations for Phillips

By Telegraph

TULSA, Oct. 14.—O. L. Cordell, formerly in charge of refining operations and wholesale sales for the Independent Oil & Gas Co., has been placed in charge of the same department of the Phillips Petroleum Co. with which the Independent has been merged.

Mr. Cordell was in charge of refinery operations and sales of the Waite Phillips Co. before that company was sold to the Barnsdall Corp. After the sale Mr. Cordell built and operated a refinery at Borger, Texas, which he sold to the Phillips Petroleum Co. in 1927.

For a short time thereafter Mr. Cordell was with the Phillips Petroleum Co. In 1928 he resumed his association with Waite Phillips by joining the Independent as vice president in charge of refinery operations and sales.

Headquarters of Mr. Cordell and his organization will be at Tulsa.

Attempt to Break Proration Starts in Oklahoma

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Oct. 11

A SWEEPING assault upon the proration system of curtailing oil production to market demand in Oklahoma started before the state corporation commission Oct. 10.

When the hearing was begun on application of leading operators for an order restricting production over the rest of this year, protestants appeared in large number.

Oil companies, royalty owners and individual producers came in with their attorneys in such numbers as to make it necessary to hold the hearing in the house of representatives room of the state capitol, instead of the court room of the commission.

A total of 63 witnesses had been summoned by protestants. These included representatives of producing companies, pipelines and all those have been prominent in proration work. Protestants intend to delve into the whole history of proration in the state and the avowed purpose of the attorneys who represent them is to break the present proration system.

They intend, so one of them said out of court, to lay the record before the federal department of justice, in addition to carrying the matter into the courts if the commission grants the order sought, which would continue proration.

Federal intervention would be sought on the allegations that proration has been used as a means of maintaining price.

The hearing promises to last for one more week, at least, and possibly longer.

The state, assisted by the Mid-Continent Oil & Gas Association, maintains that proration of the state's production is necessary to avoid waste. Those protesting the order contend that there has been no waste in years, that there is no danger of any now. They say that, under the law, the commission has exceeded its authority, which is limited solely to the prevention of physical waste and that it does not possess the power to enforce proportionality in taking oil from a pool.

Ordinarily, hearings on application for proration orders are disposed of in two or three hours and the orders issued shortly thereafter. On Friday one witness occupied the stand all day.

The attack on the proposed order is a continuance of the recent attempts in the state supreme court and in the federal court to break down proration, both of which resulted in temporary victories for the commission. While the state court has not handed down its opinion in the C. C. Julian Oil & Royalties case, it set aside a temporary writ of prohibition of the proration order granted at the outset of the case. The federal court refused to issue an injunction sought by the Champlin Refining Co., although it is permitting the case to go on and be heard on its merits.

THE nub of the whole attack is the use made by the corporation commission of the state law against waste. Orders issued over the past two years recognized the question of proportional taking in order to preserve the common ownership of oil from a single source of supply. Thus, the state contends, an operator who owns his pipeline or can ship his oil by tank car to market, does not possess the right to produce his wells at greater capacity than a neighbor, lacking market, can do.

The state law which provides for proration says, in part:

"Whenever the full production from any common source of supply of crude oil or petroleum in this state can only be obtained under conditions constituting waste as herein defined, then any person, firm or corporation having the right to drill into and produce oil from any such common source of supply may take therefrom only such proration of all crude oil and petroleum that may be produced therefrom, without waste, as the production of the well or wells of any such person, firm or corporation bears to the total production of such common source of supply. . . ."

THE state and the operators who have backed the proration policy contend that it is within the meaning of the act and a lawful exercise of the police power of the state to protect one operator's share of oil in a given pool from drainage by another who is in position to market a greater amount. The protestants contend that the whole affair turns upon the question of physical waste.

And the whole case turns pretty largely upon the Oklahoma City field.

Leading in the protest of the proposed order are the Julian company, the Champlin Refining Co. and the Marco Oil & Royalty Co. The latter operates upon small parcels of land in the state's principal field.

There will be protests later in the hearing on the proposal, contained in the petition for the order, to bring under proration some 10,000 small wells not heretofore prorated. By this means it is expected to cut down between 55,000 and 60,000 barrels daily production and give

Oklahoma City a greater outlet. W. H. Gray, attorney and independent operator, appeared at the beginning of the hearing and asked, on behalf of the Mid-Continent Royalty Owners' Association that the hearing be postponed 15 or 20 days so that the people he represented might prepare a protest. His request was denied.

Ray M. Collins, state umpire, occupied the witness chair the entire day and after he had stated the case for proration the firing by the protestants began. Five or six lawyers took turns questioning him. He was required to state his salary and the names of the oil companies that pay it. The attempt to make him say that proration is a price-fixing device was halted by the commissioners, who declared they had nothing to do with that phase and it was not an issue in the case.

They then turned to the question of market demand. Mr. Collins was asked how he arrived at the figure of 550,000 barrels daily recommended as the state's figure for October, 545,000 in November and 535,000 in December. He replied that a canvass had been made of the buying companies using Oklahoma crude. Fifty-seven companies had been queried and the sum of their replies was the figure adopted in the petition, be stated.

He said, on cross-examination, that the adequacy of transportation facilities had nothing to do with the demand. Oklahoma is in the same situation as other states—it has too much production and the demand cannot be increased. A half hour was consumed in trying to get him to say, if one operator in the Oklahoma City pool found a market for a large quantity of oil, at 50 cents below the market, whether he would or would not recommend to the commission that it modify its order and permit the operator to fill the order. Mr. Collins stuck to his point of ratable production, that such new demand would be taken into account and such portion of the order recognized as could be produced without disturbing the proportionality of taking.

It was evident that the protestants are carefully making a record for the purpose of appeal to the courts. Under the somewhat lax rules of procedure in the commission's hearing, they are permitted to go considerably farther in questioning witnesses than the average court would allow. On several occasions, objections to the line of questioning Mr. Collins would be made by Frank Burford, who is leading the state's case, and the commission would sustain him. Thereupon, the protestants would note an exception and then dictate a statement into the record that, if the witness had been permitted to answer, he would have said thus-and-so.

Victor H. Smith, president of Gulf States Terminal & Transport Co., refiners took the stand Saturday morning. He has been publishing advertisements in Tulsa and Oklahoma City newspapers inquiring for Oklahoma City oil. Protestants expect to show by him that the demand for oil from this field is much greater than that specified in the petition filed by Wirt Franklin asking for the proration order.

The last general order expired Sept. 30. Because of the court action then in progress the commission issued an order carrying proration along on the September basis to Oct. 10. Now, because of the extensive proceedings before it, another interim order was necessary, preserving the status quo until Oct. 20.

Oklahoma Supreme Court Upholds Proration

(By Telegraph)

TULSA, Oct. 14.—The supreme court of Oklahoma today denied the application of the C. C. Julian Oil Royalties Corp., Oklahoma City, for an injunction forbidding the state corporation commission from enforcing its proration orders in the Oklahoma City field. The case was argued more than a month ago.

Six justices concurring, to two dissenting, held it was a lawful exercise of the police power of the state to order proration in an oil field for the purpose of preventing one operator from getting more than his undue portion of oil from a common pool, in times of a surplus of production over market needs.

Champlin Refining Cuts Oklahoma Crude Price

By Telegraph

TULSA, Oct. 13—Effective today Champlin Refining Co. of Enid, Okla., reduced its postings for Oklahoma crude oil by 25 to 31 cents per barrel. Champlin's listings begin at 32 gravity for which it has posted a price of 90 cents per barrel, 25 cents below the price paid by major purchasers. For each increase in gravity of one degree A. P. I. Champlin will pay a 3-cent higher price. Oil of 44 gravity and higher is posted at $1.26 per barrel, 31 cents under other purchasers.

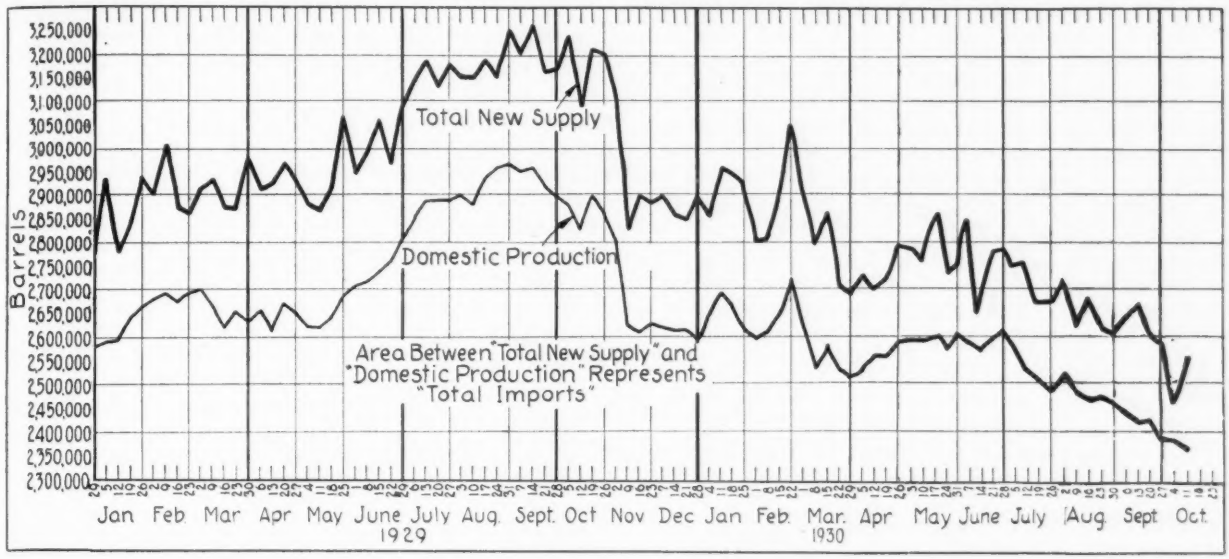
22-Inch Line to Carry Ky. Gas to Detroit

CLEVELAND, Oct. 13.—A 22-inch natural gas line is to be laid from the gas fields of eastern Kentucky to Detroit by the Moody-Seagraves interests, Hope Engineering Co., and American Utilities & General Corp. The gas will be used in Detroit for industrial and not domestic consumption.

Application was made Oct. 10 to the Detroit city council for a permit to lay the line into each industrial district of Detroit. The petition for the permit was presented by R. S. Lord, Mt. Vernon, O., president of Hope Engineering Co., and M. J. Dewey, vice-president of the Northern Industrial Gas Co., the corporation formed to handle this project.

The line will have a capacity of 150,000,000 cubic feet a day. It will be approximately 390 miles long. It will cost with compressor stations and other equipment about $25,000,000, it was announced.

Review of Late Production News



Daily Average Crude Oil Production and Imports Based on Current Reports of American Petroleum Institute

PRODUCTION continues downward. Daily average declined 20,150 barrels, to 2,366,800 barrels, the week ended Oct. 11, according to the American Petroleum Institute. Oklahoma City declined 18,250 barrels and Hobbs High 8,550 barrels. Crude imports were 188,000 barrels, a gain of 114,000 barrels over the previous week.

Current production in this country by pools is found on page 97

Texas, New Mexico, Louisiana

TESTS on the Cranfill Bros., & Gulf Production Co., wildcat in Sec. 8, Block B-27, western Crane county, which flows approximately 100 barrels daily by heads at 4295 feet, show it to be one of the largest field discovery wells of the Permian salt basin region. A field comparable with Winkler, Texas, or Hobbs, New Mexico, is indicated by the Cranfill-Gulf well, which is on the Tubbs ranch. Because of the Gulf owning 60-odd sections in its adjacent block, however, development will be conservative.

Except for normal large wells, which have now brought Hobbs field to more than 600,000 barrels daily potential, compared with 35,000 barrels daily outlet, southeastern New Mexico is quiet.

Seven wells producing below 8200 feet in Pennsylvania formation at Big Lake, Reagan county, Texas, made 12,470 barrels daily for a new high yield. C-4 of Big Lake Oil Co., Sec. 1, Block 2, which was deepened from 8220 feet to 8697 feet, gauged 2937 barrels, initial daily production, of oil and 55,340,000 cubic feet of gas.

Oklahoma, Kansas

WILDCAT news in the Mid-Continent was scarce during the past week except in the state of Kansas. Here, Rice and Ellsworth counties both had good looking possibilities along the trend northeast of the Schurr pool in the southwestern corner of Rice county. The new wells may mean new pools, or outline the limits of a producing area of considerable size. Rooks county also had a small wildcat strike.

Interest in Oklahoma was centered chiefly at Oklahoma City where there was a large number of big producers brought in. All of these completions are bottomed in the Wilcox sand about the north end of the structure, and their initials ranged from 5000 to 60,000 barrels.

The dolomite areas of the Texas Panhandle were very active during the week and several good producers were completed.

California

BELRIDGE Oil Co. has recompleted its No. 15 in the Belridge-Lost Hills district for 3,000 barrels of 55 gravity oil and a large flow of wet gas. The well was deepened 503 feet to 5475 feet.

The new well started out as a 2000-barrel producer and increased its flow. Tubing pressure is 800 pounds and casing pressure 1600 pounds. It opens a vast new territory for future exploration.

Rocky Mountains

SECOND test in the Midway-Geary Dome program being drilled by the Midwest Refining Co. and its affiliated interests has been started on Geary Dome 12 miles east of Casper. The Midway Dome discovery well is again being placed on the pump, after having plugged off bottom hole water in the second bench of the second Wall Creek sand. Midway Dome is 12 miles directly north of Casper.

Six Months' Gasoline Survey Started by Institute

NEW YORK, Oct. 14

A SURVEY of gasoline supply and demand by principal refining districts, for the coming six months, has been started by the American Petroleum Institute.

The survey was authorized by institute directors meeting at Tulsa, Oct. 3. Its findings are to be reported at the annual institute meeting in Chicago in November.

Refiners of the country have been asked to supply data covering, for each company, estimates of working stocks of gasoline on April 1, 1931; estimates of actual gasoline stocks on that date and estimates of the total amount of crude to be run over the six months' period from Oct. 1.

Refining companies are asked to include in their estimates gasoline at refineries, bulk terminals and in transit, these figures also to be broken up and placed in the Bureau of Mines refining districts in which the company operates.

In order to give the special institute committee on economics time to make its survey, based on these reports by companies, refiners are asked to have their figures in the institute office by Oct. 20. Figures will not be published by individual companies, but only totals for refining groups.

The special committee making the survey is headed by J. Edgar Pew, Sun Oil Co., chairman. John D. Gill, Atlantic Refining Co., Philadelphia, is chairman of a statistical subcommittee.

Members of the special committee are Howard Bennette, Western Petroleum Refiners Ass'n, Tulsa; Paul N. Boggs, Union Oil Co., Los Angeles; W. N. Davis, Phillips Petroleum Co., Bartlesville; Wirt Franklin, Wirt Franklin Petroleum Co., Ardmore; C. C. Herndon, Skelly Oil Co., Tulsa; R. C. Holmes, The Texas Co., New York; W. M. Irish, Atlantic Refining Co., Philadelphia; E. W. Isom, Sinclair Refining Co., New York; George Legh-Jones, Shell Petroleum Co., San Francisco; E. T. Moore, Simms Oil Co., Dallas; Underwood Nazro, Gulf Production Co., Houston; E. J. Sadler, Standard Oil Co. of New Jersey, New York; E. G. Seubert, Standard Oil Co. of Indiana, Chicago; B. H. Stephens, Magnolia Petroleum Co., Dallas.

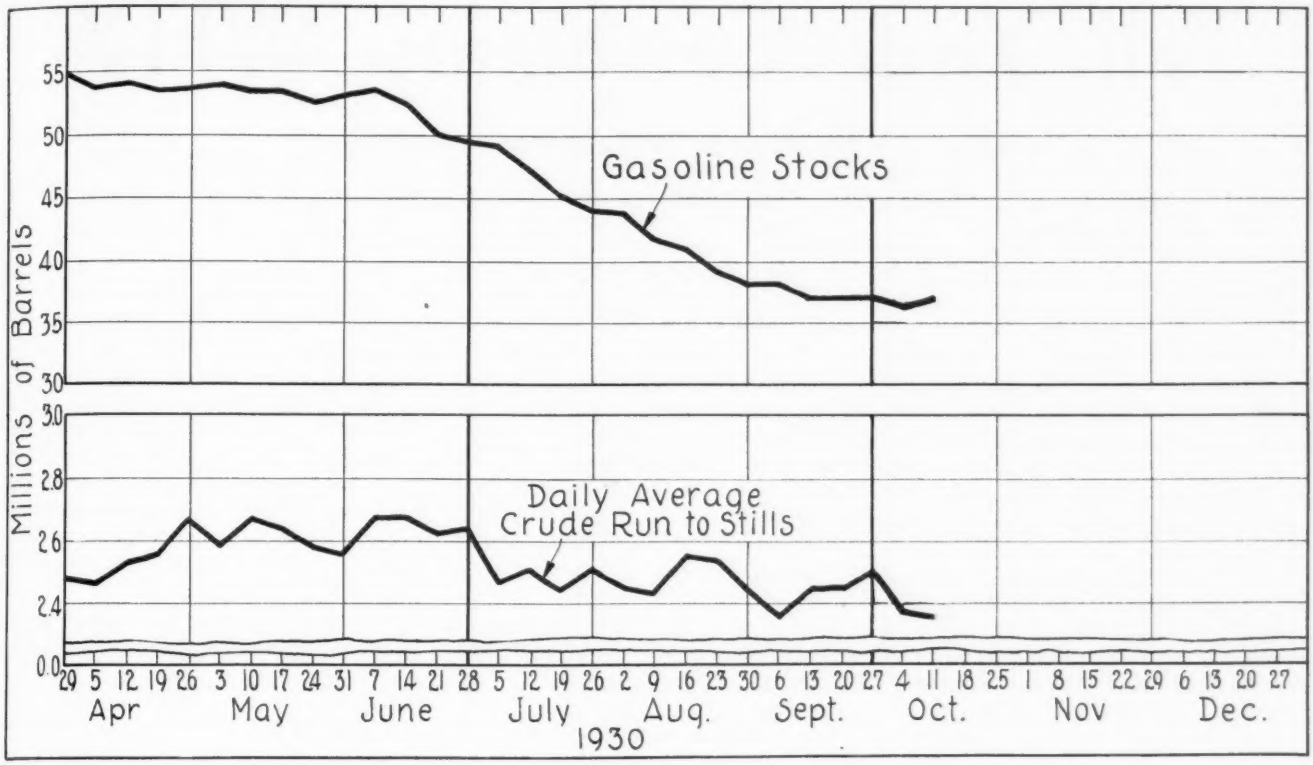
Members of the statistical sub-committee include, in addition to Chairman Gill, O. S. Ambrose, Tide Water Oil Co., New York; H. K. Davis, Western Petroleum Refiners Ass'n, Tulsa; David Donoghue, technical adviser to the Texas general operators' committee on proration, Fort Worth; Clarel B. Mapes, Mid-Continent Oil & Gas Ass'n, Tulsa; E. P. Salisbury, Standard Oil Co. of New Jersey, New York; Fred Van Covern, American Petroleum Institute, New York; Earl Wagy, Standard Oil Co. of California, San Francisco.

Killed in Plane Crash

HOUSTON, Oct. 11.—George Steiner, consulting geologist and geophysicist of Houston, Texas, was killed when his plane crashed near the town of Kountze in Tyler county, Texas. Mr. Steiner was 35 years old and is survived by a widow and aged mother.

Oil company representatives who accepted the awards of the National Safety Council for winner of the 1930 petroleum safety contest. In the front row, from left to right, are L. O. Brower, Gulf Pipe Line Co.; O. O. Perry, Hope Construction & Refining Co.; T. N. Shaw, Midwest Refining Co.; B. V. Osborn, Standard of Indiana; J. S. Hunter, Atlantic Refining Co.; G. L. Farned, Humble Oil & Refining Co.; W. C. Lynch, General Petroleum Corp.; and J. P. Sutton, Ohio Oil Co. In the back row, from left to right, are G. W. Bell, Ohio Oil Co.; R. B. Roaper, Humble Oil & Refining Co.; H. D. Kettell, Standard of New Jersey; R. W. Black, Standard of New Jersey; E. R. Alden, Vacuum Oil Co.; I. W. Lobb, Vacuum Oil Co.; R. C. Byars, Shell Petroleum Corp.; J. L. Matteson, The Texas Co.; Charles H. Linberg, Conewango Refining Co.; L. W. Dawson, Shell Petroleum Corp.; and R. E. Donovan, Standard of California

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



U. S Gasoline Stocks Increase 684,000 Barrels

By Telegraph

NEW YORK, Oct. 14

THE first important increase in gasoline stocks at refineries since early spring was made in the week ended Oct. 11, according to reports gathered by the American Petroleum Institute. The increase totaled 684,000 barrels and brought reserves to 37,125,000 barrels.

Refiners on the Gulf coast of Texas contributed most to the increase in stocks. In the face of falling demand, these refiners increased their runs of crude to stills 27,000 barrels daily average and added 499,000 barrels of gasoline to their tanks. With this increase in crude runs, Texas Gulf refiners were operating at 83.6 per cent of capacity, the highest of any group in the country.

All reporting refiners in the country operated at 66.5 per cent of capacity as compared with 67.2 per cent the previous week. Average runs of all plants were 2,371,000 barrels, a cut of 20,700 barrels daily average.

East Coast refiners increased their gasoline stocks 182,000 barrels during the week, despite a cut of 5700 barrels daily average in crude runs. California refiners cut crude runs 35,000 barrels in recognition of the lower rate of demand, but increased stocks of gasoline 122,000 barrels.

Fuel and gas oil stocks of the country were reduced a million barrels to 139,457,000 barrels.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels) Gasoline		Gas & Fuel Oil	
		Oct. 11	Oct. 4	Oct. 11	Oct. 4	Oct. 11	Oct. 4	Oct. 11	Oct. 4
East Coast	100.0	493,900	499,600	80.6	81.5	5,364	5,182	11,813	11,774
Appalachian	93.6	73,700	74,100	55.7	59.9	966	980	1,026	1,075
Ind., Ill., Ky.	97.5	271,400	285,800	71.2	75.0	5,398	5,497	4,177	4,339
Okla., Kans., Mo.	89.4	267,900	257,600	65.0	62.5	2,460	2,435	4,771	4,821
Texas	91.9	570,600	533,400	76.7	71.7	6,107	5,616	10,275	10,480
La., Ark.	98.3	149,100	160,600	56.9	61.3	1,178	1,132	2,145	2,153
Rocky Mountain	93.1	46,800	48,000	33.5	34.4	1,725	1,794	1,116	1,182
California	98.3	497,600	532,600	56.2	60.3	13,927	13,805	104,134	104,627
Total	95.6	2,371,000	2,391,700	66.5	67.2	37,125	36,441	139,457	140,451
Texas (Gulf Coast)	100.0	442,900	415,900	83.6	78.5	4,958	4,459	7,459	7,627
La. (Gulf Coast)	100.0	95,700	110,700	64.9	75.1	956	894	1,378	1,410

Tell Your Customers WHY

Hints on Merchandising Complete Lubrication In Preparing Automobiles for Winter Driving

By Roger B. Stafford

N. P. N. STAFF WRITER

HOW can you, Mr. Oil Marketer, merchandise the service of preparing automobiles for safe and pleasant winter driving? How can a large part of sales resistance be overcome?

The most effective merchandising can be done at your service stations. Have signs printed or painted telling of the services and winter car merchandise you have to sell. Coach your service station men in selling the various services and merchandise. Prepare short sales talks for them, outline what you have to offer and why the service and goods mean safer and pleasanter winter driving for your customer.

Telling your customer WHY purchase of the goods and service will minimize discomforts of winter driving, should overcome a large part of any sales resistance he may set up.

The market of preparing cars for safe and pleasant winter driving is conservatively estimated at $100,000,000. This is only an average of about $4 a car. Of course, many car owners will not spend more than $1 or $2 but others will be good for $15 to $20, depending on how good a job of selling you do.

Post your signs where the customer calling for gasoline cannot fail to see them. If possible put them in a head-on position. Post them also at the head of your lubrication pits, racks or lifts, on a level with the customer's eyes when he drives in for a crankcase oil change or lubrication. If you have a wash rack put a sign there also. If you have a one-stop station put a sign in the waiting room and wherever your customers go while waiting for their cars.

Display your accessory goods in your windows and on the inside of your stations. Place what you can on the pump islands. Make your customers see your goods. Let them handle what they can. That is the secret of success of the 5 and 10-cent stores.

Here are some of the primary reasons WHY preparations for winter should be made by the car owner.

Nature has given oils the property of thickening when cold. Cold, thick oil will not lubricate an automobile engine properly because it will not flow through the small ducts and borings. It must be heated first. Excessive wear of the moving parts of an engine comes when there is insufficient oil to separate one metal part from another.

Therefore, it is necessary that in winter an oil be used that will stay fluid at lower temperatures. The custom is to use a lighter weight oil in winter because the lighter weight or lower viscosity oil will flow more easily and get a protecting film of lubricant between the metallic parts more quickly than a heavier bodied oil.

Consequently all the heavy oil used in summer should be drained out and a lighter oil used in winter driving. With the lighter oil, lubrication starts about as soon as the engine is turned over.

Tell your customer why it is essential to have a lighter oil in winter. Tell him also that a heavy oil congealed by the cold is a heavy drag on the battery in starting. Tell him that he is less liable to have battery trouble if he uses a winter grade oil that begins proper lubrication with a few revolutions of the engine.

Tell him that he is less liable to score the cylinders and bearings. Show him the lubrication chart based on the car manufacturer's recommendations or on the scientific tests made by lubrication experts of actual performance of an oil in an engine. The charts show that lighter oil is recommended for winter.

BUT before you put in the winter grade of oil tell him he should have the lubrication sys-

Keep Gas Tank Full

ARE you, Mr. Marketer, filling the tanks of your customers' cars?

Filling of tanks and keeping them full is important in cold weather. A partly filled gasoline tank in colder weather invites condensation of water vapor from the air on the walls of the unfilled portions of tanks.

When the tank is refilled after a cold night the water sinks to the bottom of the tank and eventually will be drawn into the carburetor. Spitting, stalling and other difficulties may result. Your gasoline, in all probability, would be blamed although the fault would not be yours.

Tanks of airplanes of the National Air Transport and other air lines are filled as soon as the planes come off a flight as a precaution against water getting into the fuel.

Tell your customer this with the recommendation that he call at your station for a refill before he puts his car away on a cool night.

tem cleaned. Clean oil placed in a dirty lubrication system means dirty oil. So sell him a flushing job.

A little showmanship will help you. Strain some crankcase drainings through a cloth and keep the cloth handy to show your customers what comes out of their engines. We know of one lubritorium man who did that and sold lots of flushing oil. He had a bottle filled with dirt strained out of drainings. In the mass was a button, an iron chip, grit, and abrasive material like filings. Iron particles could be separated from the mass with a horseshoe magnet.

When the lubrication system is cleaned it is a good time to put in a new filter cartridge. This installation is not a difficult task and it means adding $3 or more to the sale.

Then put in the correct grade of motor oil for the particular car. When the car is delivered to the customer tell him he is setting out on a program of safe lubrication.

Also tell him that in winter oil should be changed more frequently because gasoline vapors that may slip past the pistons on the compression strokes of the engine will not pass off as rapidly as in summer and dilution of the oil results. Crankcase breathers retard dilution but cannot prevent it entirely. A diluted oil is a poor lubricant and the customer should be so warned. He should be reminded that regular oil changes, particularly in winter, will save him repair bills.

Like oil, gear grease or lubricant thickens in winter. A gear compound that is manufactured to lubricate the gears adequately in summer is too thick for safe lubrication in winter. When grease thickens it channels.

Your customer probably will not know what you mean when you say summer grease channels. Tell him the grease takes on the consistency of butter. The gears cut grooves through it. The grease will not flow between the teeth and in the rear axle may not reach the axle and pinion bearings. The result is excessive wear of the gears and possibility of broken bearings.

Tell your customer that it is dangerous not to have a winter grade of gear compound. That changing the compound means preventing an expensive repair job.

Winter grade compounds means easy gear shifting. Most broken gear shift levers are the result of the car owner's neglect to have the summer grade lubricant removed before cold weather comes. Your customer may never have realized this fact. Tell him when you are selling him a grease change. It will increase his confidence in you.

"It's darned cold this morning; this buggy steers like a five-ton truck!"

Perhaps hundreds of your customers have had that thought some cold morning when they could hardly turn a corner until after the engine

Manager Carpenter of a Cities Service Oil Co. station in Cleveland tells a customer why it is necessary to flush out a differential. An attendant demonstrates how the job is done. Note the portable tool rack and the bracket for the grease bucket that slips over the flange of the lift rail

was well heated and the underhood space was warmed.

Undoubtedly their cars did steer like some trucks but much harder than a well kept truck. They blamed the cold but they didn't blame themselves for not having had a lighter grease in the steering gear. Neither did they blame you for not selling them a lighter grade of grease. Yet you were just as much at fault for their steering distress as they. You permitted them to have a lot of trouble until their engines warmed up the space under the hood and thawed out the steering gear. And in so doing you permitted yourself to lose a sale of 50 to 75 cents three-fourths of which might have been profit.

Get out the old grease. Clean out the box at the base of the steering column with kerosine or flushing oil, and put in a compound that will permit turning the wheels without twisting off the column.

Tell your customers that pleasant driving will result from this small job. Tell him how inexpensive it is to be able to steer freely on a zero morning. Tell him it means having the car under his control and not under the control of a batch of solidified summer gear grease. Tell him it means safety for himself, his passengers, and his car.

But before you introduce fresh clean compound into the transmission and differential housings be sure they are clean. Dirt, metallic particles and old grease cling to the gears and the walls of the housing. Cleaning is a special job for which a charge should be made. Tell your customer it is essential that all dirt and old grease should be removed because dirt and abrasive particles in old grease means excessive wear.

Cleaning may be done by flushing, steaming and drying, or flushing oil may be introduced into the cases, one rear wheel jacked up and the engine run at a moderate speed for five minutes with the transmission in high gear. Any of the three methods should thoroughly clean out the dirt and old grease. The change should be made before the weather becomes cold because the old grease may be worked out more easily the warmer it is.

Did you ever notice the gray cast to the grease in the front wheel hubs after the grease had been in for a few thousand miles? The gray cast is given it by the metal that has worn off the bearings. Show this to your customer and recommend a thorough cleaning of the hub and bearings with kerosine. In putting in new grease, don't pack the hub full, say lubrication experts. Fill the hub only about half full of new grease. Packing full causes friction in the hub.

In replacing the front wheels see that your men allow the wheels enough freedom so they spin easily. This can be done by screwing the nut up until the wheel is firmly in place, then turn the nut back one-sixth turn before inserting the cotter pin.

Tell your customer the care you are taking to see that each operation is done correctly. It will help make him a friend and steady patron.

It is necessary for safe and economical operation of an automobile to have the chassis lubricated at regular intervals all year. So in preparing the car for winter driving this important job should not be overlooked. Extra care must be taken to see that not a point is overlooked.

WHILE you, or the station men whom the public considers as you, are talking with a customer about chassis lubrication, tell the customer how thorough a job you are doing. Tell him the kinds of lubricants you use for various parts of the car. Tell him you use a waterproof grease on the pump, a fiber grease in the universals so it will not be thrown out against the car floor eventually to work through to the carpets.

Tell him the high pressure lubricant for the springs bearings, drag links, king pins and other high pressure points, is a special lubricant designed to cling to the bearing under all sorts of use. Tell him that each lubricant is built for its particular duty, and see that you live up to this fact by using the correct lubricant for each point.

Tell him how many different kinds of lubricants you use about the car. It will impress him that you are thorough. Most motorists think of grease as just grease and do not know the care the oil industry has gone to service automobiles properly.

When your customer realizes that you are doing more than just forcing any kind of grease into the bearings of his car, you have done a good job of merchandising. The customer, more likely than not, will become your regular customer. You can do a great deal to make him a regular customer by taking a little time in promoting this winter preparation idea.

If you cannot talk to each customer long enough to tell him your whole story of lubrication, and preparation for winter service, write your story and have it printed in an attractive folder or pamphlet.

AND don't forget the springs when you are talking of lubrication. Unless a car has been washed with warm water under high pressure, or the chassis has been cleaned with a spray of kerosine or distillate, the chances are the springs are covered with only oil grime.

Tell your customer that this grime should be removed, the springs cleansed and well oiled. Unless springs are oiled and kept well oiled during winter there is danger of water working between the leaves and freezing or rust developing. Either situation may mean broken springs. Your customer may not realize this and you can tell him in such manner that he will realize you are doing him a favor by insisting that a spring cleaning is what his car needs.

The cleaning can be done with a wire brush for the larger part of the dirt, and with kerosine for the remaining grime. If you have an air line handy it is well to blow out all kerosine from between the leaves before spraying them with oil. A graphited penetrating oil is perhaps the best lubricant. Tell your customer that the penetrating oil creeps between the leaves and that graphite, a natural lubricant, aids the oil in maintaining a lubricating film between the steel leaves.

This discussion has been confined to the sale of petroleum

products and the services that can be sold in connection with oil and grease. It covers things that any service station equipped for lubrication work can do.

Charges for the goods and service can be on a flat basis, item for item, or a combination rate may be made to make a complete job more attractive to the customer. For example, the following suggestion is made to cover the 1930 model Chevrolet:

Crankcase, 5 qts. of oil @ 30c	$1.50
Differential, 4 pts. compound @ 25c	1.00
Transmission, 2 pts. compound @ 25c	.50
Cleaning differential and transmission	2.00
Steering gear, extracting old grease and refilling	.50
Chassis, thorough lubrication	1.25
Springs, cleaning and relubricating	1.00
Front wheels, thorough cleaning and refilling	1.00
Total	$8.75

A special combination may be made of this complete lubrication job for, say $7.50. It represents a saving of about 15 per cent on the combination offer. The flat prices on the front wheels, springs, steering gear, and differential and transmission cleaning have been made liberal enough so you will not lose money on the combination job.

You can have circulars or postcards printed and distributed at the pump or by mail to your regular customers. You can set a definite time period in which the combination offer holds good.

You might even have a small contract form printed pledging the prospect to call at some future time to take advantage of the special offer. But don't extend the special combination offer over too long a period. That might tend to remove the combination from the special offer to the cut price class.

In your pricing you will have to meet, of course, any competition for like work and merchandise in your field. But don't price your goods and services so low that they will be cheapened in your customer's mind.

Continental Buys Refinery

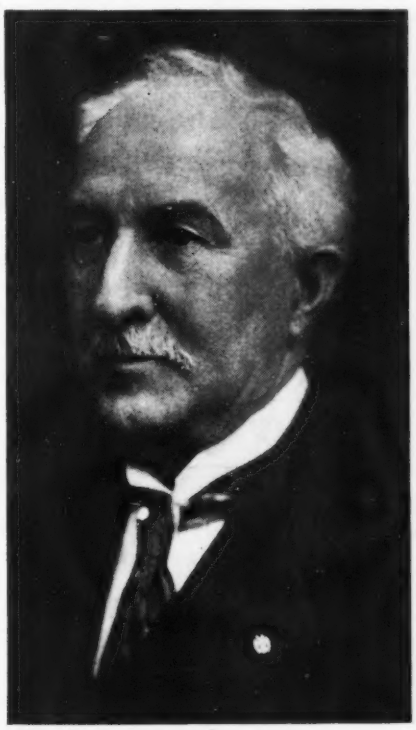
TULSA, Oct. 13.—Sale of the Gilliland Oil Co., of New Mexico topping plant at Roswell, New Mexico to the Continental Oil Co. has been announced. The plant has a throughput capacity of 1200 barrels per day. It is a topping plant which has been charging the high gravity crudes from the Rattlesnake area. Products have been gasoline distillate and fuel oil. The high gravity of the crude charges has yielded gasoline recoveries of about 80 per cent. It is understood that Continental will continue to charge this same stock.

President of Pittsburgh Refining Firm Dies

PITTSBURGH, Oct. 10.—Robert B. Miller, president of the A. D. Miller Sons Co., pioneer oil refining company here, died Oct. 8 at his home, 3911 Wilksboro Ave., Northside, Pittsburgh. He was 79 years old, and was a life long resident of Northside. He was in Allegheny City in 1851.

Mr. Miller is survived by one son, A. D. Miller III, a granddaughter, Dorothy Crump Miller; a brother, J. B. Miller, all of Pittsburgh; and three sisters, Miss Fannie V. Miller, Ben Avon; Mrs. Ella W. Boughton, Cleveland; and Mrs. Stella M. Johnston, Bellevue, Pa.

In addition to his activities as an oil man Mr. Miller was a thirty-second degree Mason and an elder of the McClure Ave. Presbyterian church.



Robert B. Miller

Must Preserve Oil Group Rate Relationships

WASHINGTON, Oct. 13.—The Interstate Commerce Commission has issued an unusual order in respect of freight rates on gasoline and other refined products from the Mid-Continent field to destination territories north and east thereof. In No. 15584, Sinclair Refining Co. and Kansas City Refining Co. vs. A. & W. and cases joined with it the whole constituting what is known as Mid-Continent Oil Rates, 1925, it has ordered the railroads to establish, not later than Dec. 22 and thereafter maintain, rates on gasoline and other refined products "which shall not depart from the relationships prescribed in said order (of Jan. 14, 1927) as between Groups 2 and 3 to the destinations covered by said order as modified."

That means that after Dec. 22 all rates from the Mid-Continent groups must be in relationship to each other exactly what the commission in its first order, dated May 10,1926 said they should be. This is equivalent to an order forbidding the railroads to make any rates lower than would result from the observance of the relationship prescribed.

The order was entered upon the petition of the Shell Petroleum Corp. and the Kansas Oil Traffic Committee. They asked for a modification of the order dated Jan. 14, 1927 so that the rates resulting from the observance of the relationship would become minimum instead of only the maximum rates.

As ordered the rates from the various groups would be the highest possible. The Shell and the Kansans said that such an order was not sufficient protection for their interests. They said they needed an order that would deprive the railroads of the right to make rates from the groups on any basis other than that prescribed for the benefit, to a large extent, of the Kansas City and Kansas refiners. That is what they obtained.

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Wichita Falls Operators Charge Crude Buyers With Discrimination

By Paul Wagner

N. P. N. STAFF WRITER

FORT WORTH, Oct. 11

CHARGING that common purchasers of crude have been unjustly and unreasonably discriminating against tenderers of oil in the Greater Wichita Falls district, the North Texas Oil & Gas Association has filed complaint with the Railroad Commission of Texas asking relief. Hearing has been set for Oct. 22 before the commission at Austin.

Named in the complaint as common purchasers are the Continental Oil Co., Humble Oil & Refining Co., The Texas Co., Gulf Production Co., Sinclair Crude Oil Purchasing Co., Shell Petroleum Corp., and Prairie Oil & Gas Co.

After reciting an aggregate production of 69,000 barrels daily was allocated the district under statewide prorating orders effective since Aug. 27, the complaint sets forth:

"That in violation of laws of the state of Texas the common purchasers referred to are unjustly and unreasonably discriminating against the North Central Texas district in the purchase of oil . . . . in that such common purchasers are failing and refusing to purchase ratably as between oil districts in this state the amount of oil which such districts are permitted to produce under such proration and allocation orders; and such common purchasers are purchasing all of the oil tendered to them for purchase in many districts of this state, particularly in the Gulf Coast district, and are refusing to purchase all the allowable production tendered to them for purchase in the North Central Texas district."

Complainants set up that the purchasers named have facilities for receiving oil tenders in the district and contend they "should be required under the law to make available to producers of said district the proper ratable market created by their respective demands for oil within this state."

The Wichita Falls district situation is complicated by the fact that many purchasers, including small buying agencies, follow varying policies with regard to percentage runs they are willing to take from leases with which they are connected. Obviously, runs are distributed among many buyers, who keep their "takings" down to nomination quantities by adjusting reductions to the total number of well connections in relation to barrels purchased, above marginal well allowances. Uneven distribution is thereby brought about as between adjoining leases to which different buyers are connected.

A SUGGESTION credited to David Donoghue of Fort Worth as technical adviser to the general curtailment committee has been urged on the Wichita Falls operators by Robert R. Penn, general chairman of that committee. This would involve formation of a central gathering agency to assemble all marketed oil in the district, arrangement being made with present purchasers to take over their field facilities and to deliver to them nomination quantities of crude after ratable gathering of exploited oil from all wells and leases. The plan is under consideration.

The new western Crane county field discovery of Cranfill Bros. & the Gulf Production Co., in Sec. 8, Block B-27, Tubbs ranch, west Texas salt basin region, will not embarrass prorating activities because of the close character under which leases on the structure are blocked.

North and northwest of the Tubbs discovery, which flowed 1000 barrels daily by heads at 4295 feet, the Gulf owns 60-odd sections. Other companies hold some acreage to the south, southeast and east, but present indications are that most of the field will be found to lie under the Gulf block.

DISCOVERY of the western Crane county field was indicated* by successive showings of gas found at 1410-1600 feet and in pays between 2700-2950 feet, along with structurally high formations as compared with wildcat failures in three directions. The shows were in beds above the Permian lime, which it was realized by Cranfill & Gulf could not be tested adequately until the drill had gone below 4200 feet. Meantime, the industry generally paid little attention to the test and the present discovery brought surprise to others than the well owners.

Protests along lines previously made regarding other areas have been lodged by the Gulf Production Co., against marginal well provisions of statewide prorating as it affects Ector county properties. Gulf describes plan as discriminating against larger wells in favor of smaller wells and is called illegal. Gulf also charges market outlet feature of prorating program fixing allowed production on purchase nominations is not based on physical condition of pool or area but on the whims of purchaser.

Railroad commission has set for hearing Oct. 22 at Austin the problem of prorating deep wells in the Big Lake field of Reagan county.

*NATIONAL PETROLEUM NEWS, pages 44-45, June 4, 1930.

The tariff parade marching down Main Street, Tulsa

Tariff and Reduced Drilling Urged As Cure for Overproduction

TULSA, October 10

HANDLING the proration of oil production on a world wide basis, and doing it by reducing drilling, rather than by pinching completed wells is the principal plank in the platform of the Mid-Continent Royalty Owners Association. This measure, together with an unreserved stand in favor of a tariff on crude oil and refined products were expressed as the association's views by J. Monte Hayner, in his address as retiring president, made at the annual dinner held October 9.

Routine business occupied but little of the program. Directors were appointed, who will elect the officers for the coming year at a later date. The principal talk of the evening was made by H. G. McKeever, of Enid, former chairman of the Oklahoma State Bar Association.

Mr. McKeever's talk was divided into two parts. In the first he dealt with the harm done the royalty business by the unscrupulous royalty salesman, who takes advantage of public ignorance of royalty values to make sales at ridiculously high prices. In the latter part of his talk, he outlined some of the puzzling legal questions in connection with the proration of oil.

In dealing with the legal status of the fraudulent and semi-fraudulent royalty salesman, Mr. McKeever urged the association to investigate such laws as are now in effect, and to work to the end that such additional laws as are necessary to protect the public and the legitimate royalty salesman, or broker, may be passed.

In describing what he meant by sales being beyond the pale of reasonable prices, Mr. McKeever cited one instance that had come under his observation in which a piece of royalty was sold at a price which would return the investment in 472 years, provided neither the price of oil, nor the well's initial production declined. This, he said, was too long.

In touching on the legal intricacies which are now confronting the further proration of production. Economic waste, he said, which is used freely as a reason for a continuance of proration is too broad a term, and one too world wide in significance, to be a secure foundation for court action.

THE Mid-Continent Royalty Owners Association has long been active in the fight for a tariff on oil. Many members of the association are members of the Independent Petroleum Association of America. During the day preceding the dinner of the former Association, a tariff parade was staged by the I. P. A. A., in which several hundred took part.

Automobiles and marchers bearing placards setting forth the cause of the tariff advocates made up the parade. Demands for a tariff as a protection to the American oil worker, as well as for the independent producer, were made.

Wildcat Wells in Western Kansas Find New Producing Areas

TULSA, Oct. 11

WILDCATTERS of the Mid-Continent seem to have been more interested in the International Petroleum Exposition during the past week than they were in completing their wells. At any rate there were very few reports from the outside areas except in Kansas. In this state the structural trend northeast of the Schurr or Raymond pool, across Rice and Ellsworth counties, had some interesting new ones.

In Oklahoma, interest was centered in the Oklahoma City pool, where a large crop of big producers were brought in, and in the latest completions in the West Asher pool of Pottawatomie county. The Texas Panhandle had several good reports, the best of which were in Hutchinson and Gray counties. Moore county, with a new pipeline outlet, may see some real development in the near future.

Oklahoma City

Continuing in its struggle for bigger and better oil wells, whether they are needed or not, the Oklahoma City pool broke all previous records during the past week. In the closely drilled territory on the north end of the field, there were eight new wells brought in for initials or better than 25,000 barrels per day. One company had three others that were estimated as being good for over 50,000 barrels, while 17 more in the same region added from 2300 to 15,000 barrels per day each to the already top-heavy potential.

Most of the big wells were in the northwest quarter of 2-11-3. In this part of the section, Oils Inc., had one gauging 13,200 barrels in three and one-half hours, and the Minnehoma Oil & Gas Co., another which made 5780 barrels in two hours. The first well in for T. B. Slick was good for 60,000 barrels, and a second put 2231 barrels into the tanks in a little over an hour. A third well of this company was a gasoline well which made 740 barrels in 10½ hours under a 1700-pound back pressure. The average total depth of these wells was 6550.

There is as yet no indication that the western border of production has even been approached in the section immediately south of the above wells. In 10-11-3, the No. 5 Holms of Hall & Briscoe, moved the western edge out two locations when it came in for 5983 barrels in one hour and 45 minutes. The sand was from 6381 to 6540. In the same section the Indian Territory Illluminating Oil Co., No. 1 was nearly as good with 5202 barrels in four hours. Neither of these wells indicate that there is much of a drop off in the structure away from the high to the east.

West Asher

The West Asher pool of Pottawatomie county, Okla., showed strength on its eastern border that might well have been unexpected. Until recently it was thought that water would prevent the completion of really good wells in that direction. However, the Deep Rock Oil Corp., No. 2, NW SW NE, 23-6-3, gauged 2247 barrels in 22 hours and moved the eastern line out one location.

Another surprise was the No. 6 Cryer of the Prairie Oil & Gas Co., in the NE NE NW 23-6-3. This well is now the northwest corner of the pool and is but one location south of the line of water wells drilled some time ago. In the sand from 3553 to 3580, the wells made 1050 barrels in 11 hours.

Kansas

The major portion of the new well interest in Kansas was in Rice and Ellsworth counties. In the latter, the Slick-Darby No. 1 Keiter, NW, 25-17-10W, playing the NE-SW trend of the ridge on which the Schurr pool is situated, hit the Siliceous lime at 3221. After being deepened three feet the hole filled up 2000 feet with oil in six hours. The oil tested 44 gravity at 90 Fahr.

The progress of this well has been carefully watched since the completion of the Tatlock well eight miles southeast in Rice county. The latter is estimated as a 2500-barrel well. That the new well may mean a new pool is a possibility but some optimists believe that the two areas are connected. They are very evidently in the same trend.

Two and one-half miles north of the Tatlock well, in 22-18S, 9W, and drilled as a result of it, the well of Robertson et al struck 7,500,000 cubic feet of gas from 2019 to 2020. On being deepened to 2024 this gas increased to 11,000,000 cubic feet and it is now being cased off to continue drilling. The well is acting much as did those mentioned above and its log compares with both of the wildcat producers.

Another important wildcat in western Kansas, was that of Boyston et al in 21-8S-19W, in Rooks county. In the pre-Pennsylvanian conglomerate at 3430, the pay was found from 3442 to 3445 and oil rose 2500 feet in the hole. The oil is 32 gravity at 60 Fahr., and though the well swabbed down quickly it is estimated at 200 barrels. It bailed 13 barrels an hour with a showing of water. The well is a rank wildcat and may be a pool opener for the region.

The Voshell pool of McPherson county, in potential tests to determine proration allowances for the coming month, showed a gross potential of 68,233 barrels from 92 wells. The present plan of producing but 12.78 per cent of potentials is to be kept in

force as the pipe line outlet is still but 8800 barrels per day.

Texas Panhandle

The largest well to date in the Skellytown area of eastern Hutchinson county was brought in this week. This was the Smith-McDonald, No. 2A Pitcher, SW E½ SW, 19-M21. The pay was in dolomite from 3040 to 3135, and after a 250 quart shot, it produced 290 barrels. One mile north of this area, Timms et al hit what appears to be a 400-barrel producer in its No. 2 Moore, SE N½ SW, 21-M21. The pay was from 3053 to 3120.

The best completion of the week in Gray county was the No. 3 Smith of British-American-Shell, E½ NW, 138-3-I&GN. It is in the dolomite area west of the town of Pampa and is reported as the biggest well for this new pool. Its gauge after shot was 643 barrels. Total depth of the well was 3228.

Of prime interest to operators in Moore county was the connection of the Bartex pipeline to the Operators-Sunray No. 1 Jones in the Morton area. The well ran an average of 2.28 barrels per day last week. This line, the property of the Phillips Petroleum Co. will give an outlet to the wildcat producers of the northeast quarter of the county. There is evidence of a pool of sorts existing there, but until the present time there has been no opportunity to test the scattered wells.

Tariff Body to Study Crude Imports

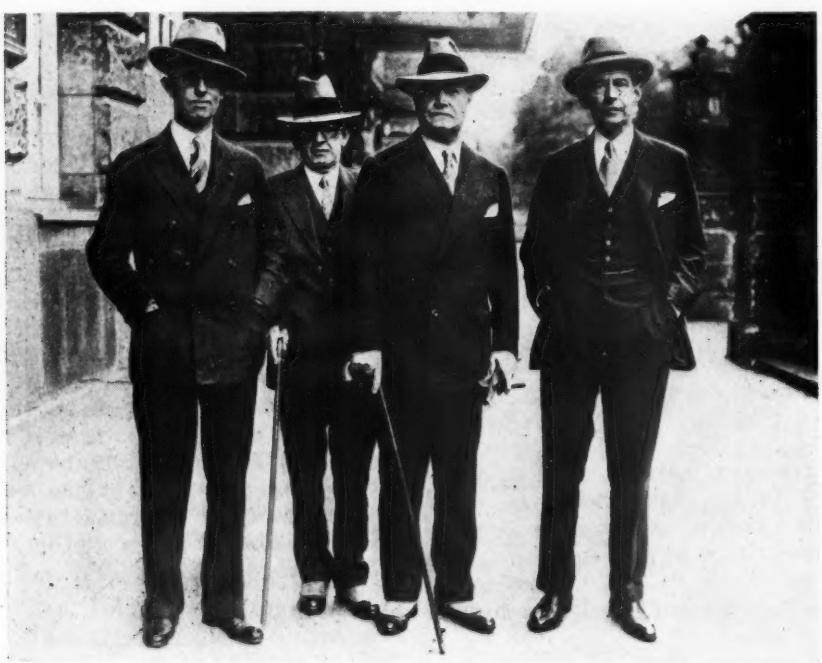
WASHINGTON, Oct. 13. — The United States Tariff Commission is to make a formal beginning of its inquiry into the cost of crude petroleum delivered to refineries located on the Atlantic seaboard with a hearing in Washington on Oct. 31. The inquiry is in compliance with the provision in the tariff law passed in June requiring the commission to ascertain the approximate average cost per barrel of crude petroleum delivered to the seaboard refineries from the oil fields of the United States and from the Lake Maracaibo field in Venezuela. The hearing will be open to all.

Insertion of the provision requiring the tariff board to make that inquiry was all the Mid-Continent and southwestern producers got out of their fight last spring for a duty on crude coming from foreign fields so as to give American producers protection against what they said was the low cost crude that was being imported, free of duty, from South America by the seaboard refiners.

The economics division of the tariff body began looking into the matter as soon as the act was passed so as to be prepared to guide the inquiry when it should be formally instituted by the commission. At that time the commission itself was in a disorganized condition because it was being made over by Congress. President Hoover created the new commission provided for by the tariff act by selecting three new men and naming two of the old members of the body.

No such inquiry has ever before been made. The whole commission will sit on the bench to listen to the representations made with respect to the cost of crude from the competing fields. In the course of the tariff debate last spring those favoring the imposition of a duty alleged that Venezuelan oil was being laid down on the seaboard at a cost very little above 75 cents a barrel, the figure representing the cost at the well in Venezuela while the cost of American crude was more than double that figure. There was much dispute about the matter. The tariff commission is merely to ascertain the cost and report the fact to Congress.

The ordinary work of the commission is to ascertain the costs of foreign produced and domestic produced articles with a view to giving the President the facts upon which he can base his judgment as to whether, within the limits set by the tariff law, the duty to be paid upon the foreign commodity or commodities is to be increased or lowered. Generally all proceedings before the commission look toward an increase. Representatives of both the importing interests and the independent American producers have been consulted by members of the staff of the commission looking toward the production of facts within their ken.



—International News Reel Photo

Sinclair interests are reported negotiating for leases on oil bearing lands in Oldenberg and Hanover, Germany. The photograph of Harry F. Sinclair and staff was taken at Berlin. Left to right Leland V. Stanford, W. L. Connelly, Harry F. Sinclair and Daniel T. Pierce

Gas Lift Bulletin Out

CLEVELAND, Sept. 27.—An exhaustive paper on gas lift practice in California by H. C. Miller has been published by the U. S. Bureau of Mines. The document is Bureau of Mines Bulletin 323, obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 30 cents.

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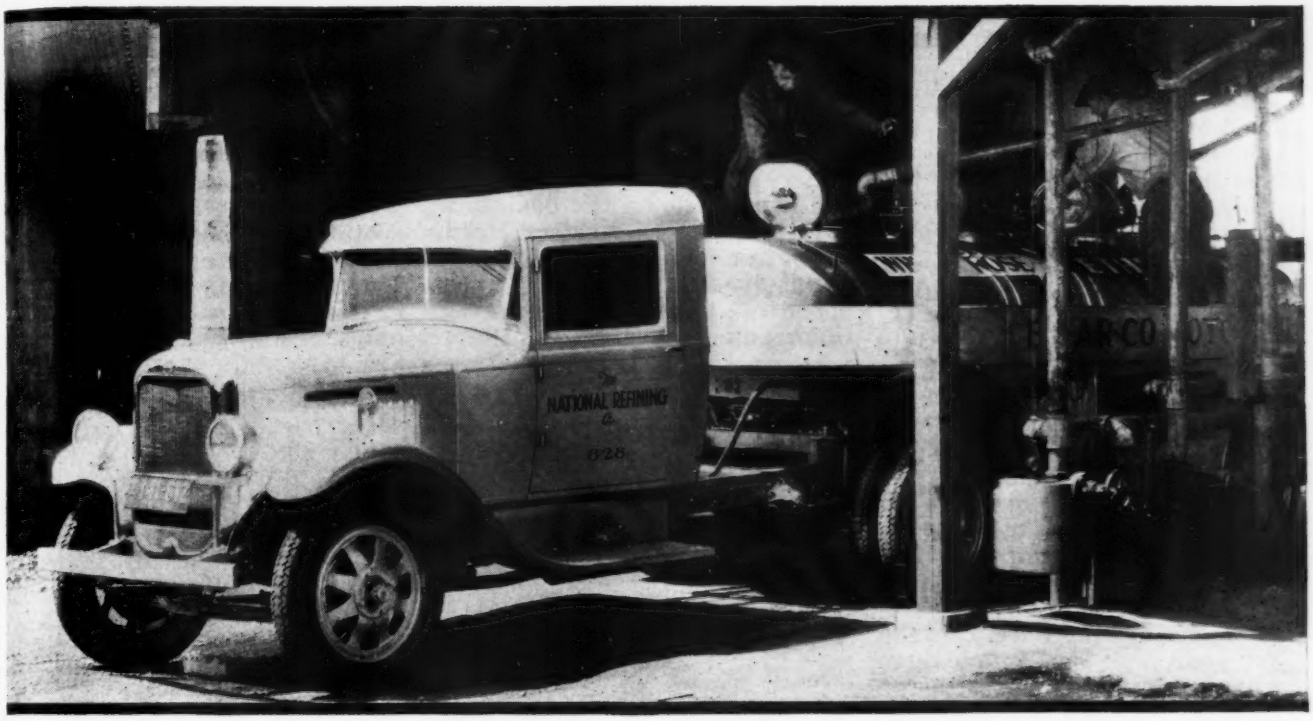

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PRODUCT OF GENERAL MOTORS

Richards Heads Mid-Continent Ass'n; Kelley Charges Depreciated

TULSA, Oct. 11

ANNUALLY the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association holds a general meeting, with dinner and entertainment. The 13th such meeting celebrated the founding of this potent organization.

To succeed C. C. Herndon, vice-president of the Skelly Oil Co., as division president, Alvin W. Richards was elected at the business meeting held the afternoon of Oct. 8, preceding the dinner. Mr. Richards is head of the legal department of the Pure Oil Co., southwest producing division, and lives in Tulsa. He has been closely identified with the proration work in the state, which has been the association's major activity over the past year, and enters his term of office fully equipped with the experience in this line which is a requisite, now, to the job.

In giving an account of his stewardship, Mr. Herndon reviewed the work which the association has performed. It has assisted the state corporation commission in ascertaining the condition of the industry, gathering the information on potential production and market demand, and has stood ready at all times to aid in correcting the inequalities. Proration, said Mr. Herndon, is a painful but necessary expedient and at this time it is probably more urgent that the producers work together than at any time in the industry's history. Potential production of the United States today exceeds 10 million barrels daily and the demand is less than one-fourth of that figure.

The division elected Rush Greenslade, vice-president of the Gypsy Oil Co., first vice-president; Tom C. Johnson, independent operator, Wichita, second vice-president. They succeed E. H. Moore, former president of the Independent Oil & Gas Co. and A. M. Landon, Independence, Kans. John H. Kane, executive vice-president of the Phillips Petroleum Co. and Wirt Franklin were re-elected vice-presidents for northern and southern Oklahoma respectively.

It having been the custom in former years to re-elect Harry H. Smith secretary and general counsel, this formality was speedily dispatched. The announcement of it at the dinner was greeted with cheers.

Alvin W. Richards, new president of the Oklahoma-Kansas division, Mid-Continent Oil & Gas Association

Eighteen new members were added to the executive committee, which functions as a board of directors. The committee now numbers 95. Several replaced those who had served last year. E. E. Kirkpatrick was elected to replace the late T. B. Slick. He is vice-president and treasurer of the Tom Slick Oil Co. R. S. Ellison, new president of the Stanolind Crude Oil Purchasing Co.; Ralph B. Pringle, vice-president of the Tidal Oil Co.; E. H. Leroux, president of the Oklahoma Pipe Line Co.; B. A. LaSelle, Ada and H. B. Fell, C. W. Tomlinson, W. H. Gant, Jake L. Hamon and Ward Merrick, all of Ardmore, are other new members.

Speakers at the dinner were C. C. Herndon, Dr. John W. Frey, head of the petroleum section, bureau of foreign and domestic commerce, Washington; John M. Lovejoy, president of the Mexican Seaboard Oil Co. and "Senator" Edward Ford, humorist.

Mr. Lovejoy's address was devoted partly to the charges recently made by Ralph S. Kelley, of the public land office, who asserted that the department of the interior was not properly safeguarding the oil shale reserves on public lands and was permitting oil companies to gain title to such lands in manner that violates the law and the regulations. Mr. Lovejoy brought up this subject because he said there is danger that it will be given sensational publicity of such scope as to block the interior department in its efforts to promote the orderly handling of the Kettleman Hills field.

". . . . it is unfortunate that public attention should be diverted from an economic problem which so essentially bears on the prosperity of the country by the recent sensational statements that vast oil reserves have been dissipated by the department of the interior," said Mr. Lovejoy. "The statement has been made that through the giving away of the fee lands in the shale deposits areas of Colorado, the government has lost, or will lose, reserves having the value of 40 billions of dollars, and the public left holding the bag.

"The land classified as oil shale in the 1929 annual report of the director of the United State Geological Survey in the three states, Colorado, Utah and Wyoming, is over four million acres, none of which is under lease. This four million acres

is subject to the land leasing act of 1920, and is available for leasing. However, this report also states that no applications for leases are now pending. It occurs to me that if this land had the value above indicated, it would be in greater demand than this report shows.

"The sensational charges of Mr. Kelley, when analyzed, indicate a belief on his part that the government has been too lenient in accepting evidence of rights established under the old placer law by virtue of which the government must grant patents. The secretary has states that approximately 38,000 acres of land has been patented during his term of office. However, on account of the sensational nature of Mr. Kelley's charges, the publicity attending them is out of all proportion to their importance. The public, always ready for some spicy scandal, particularly if it is in connection with oil, is only too willing to think of a 40-billion dollar reserve being improperly administered.

"Production of oil from oil wells necessarily requires high priced labor. Production of oil from oil shales must be based upon extremely low priced labor, if not, indeed, upon Soviet methods of compulsory cheap labor. The present known deposits in the oil sands of the country will suffice our needs for many years. After the oil sands have been exhausted, the distillation of oil from the inexhaustable coal fields will be our next source of supply.

"In the opinion of those who have made a study of the question, shale cannot compete with coal distillate as far as we can see into the future. It is my opinion that before these oil shales can be commercially profitable, a substitute for oil product will be found for use as motor fuel.

"Unless the American wage scale is radically reduced, these shale deposits cannot possibly be exploited until such time as our oil fields and the other big oil fields of the world and probably our coal deposits will have become exhausted. I know of no oil executives interested in acquiring oil shale deposits and, in my opinion, these deposits have no present commercial value whatsoever.

"Mr. Kelley states that this princely domain, to use his own words, is being contended for by the kings, princes and adventurers of the oil world and that they have already captured vast areas of it. These . . ., he states, work through politicians, with pull, influencing complacent officials of the government and through the department of the interior, which is the custodian of the land.

"Seriously, these fantastic charges vitally concern us. We should not be diverted from the real problems before us nor should the government with its many important matters at hand, nor should the public who are trying to recover from a too rapid expansion of business, be led away into a maze of impracticable investigation.

"The independent units of the oil industry, which have no connection with or interest in these fabulous shale deposits, and no intention of dissipating their capital by acquiring them should see to it that these charges of Mr. Kelley should not be allowed to be thrown across the track of progress and delay, or wreck through sensational investigations, the necessary work that lies immediately ahead."

Engineers Study Pipeline And Refining Problems

TULSA, Okla., Oct. 13.—The first meeting in three years of the American Society of Mechanical Engineers in which petroleum played exclusive part was held in Tulsa during the International Petroleum Exposition.

Principal attention was paid in the papers presented to pipeline and refining problems, of the former probably the greatest interest was aroused by the discussions on automatic control. There was on display at the exposition grounds a model station, fully automatic in its operation, and a paper by J. B. Ford, of the Chapman Valve Co., J. B. McMahon, Tulsa, and T. D. Williamson, Petroleum Electric Co., explained fully the installation and operation of the station.

Lubrication of Diesel engines, operating data on electric motor driven reciprocating and centrifugal oil line pumps, design of pumps, design of pipeline systems were other topics discussed at length.

With Walter Samans, chief engineer, Atlantic Refining Co., presiding, the third and concluding day was devoted to refining. Discussion ranged from the importance of cracking equipment in the modern refinery through several operating phases to that on specific equipment. Most of the prepared papers were the contributions of engineers for equipment manufacturing companies.

The petroleum division of the society feels that it has been good progress in the effort to establish a place for mechanical engineers, who had been somewhat neglected by those associations which devote themselves to production, engineering and refining. Some important work is now under way by the division. One of the projects is the test of steam equipment on rotary drilled wells. The overall efficiency of steam prime movers is now being investigated on a well being drilled in the Oklahoma City field. The data that will be gained will give the industry a basis on which to work for greater economy.

Indicating and recording equipment has been loaned by a number of supply companies and a committee appointed by the division of the society will keep close watch on the results, finally correlating and making public the findings.

Dry Ice From Mexico

CLEVELAND, Oct. 9.—A well in Mexico producing carbon dioxide gas is the source of a weekly supply of 200 tons of dry ice which is being shipped to New York for sale. This information is supplied by a reader correcting a statement in the Sept. 24 issue of NATIONAL PETROLEUM NEWS that the Continental wells in Colorado would be the first natural carbon dioxide deposits to be used in making dry ice.

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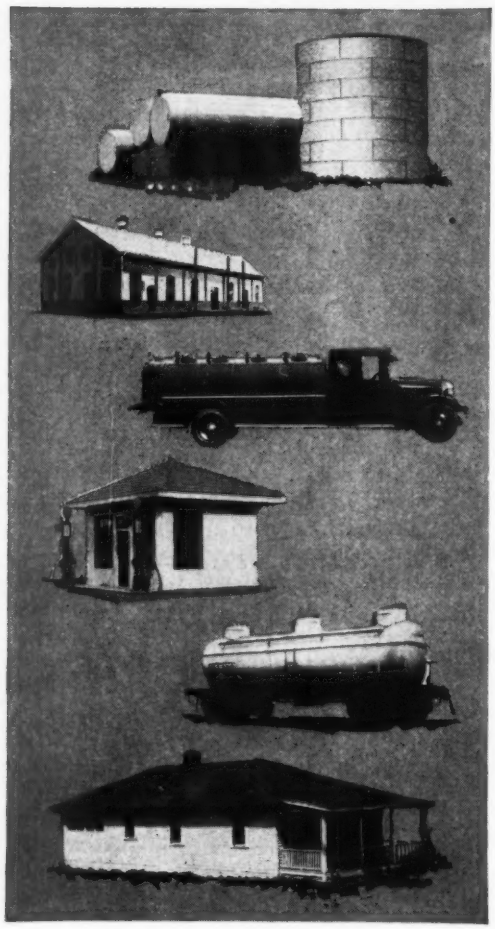

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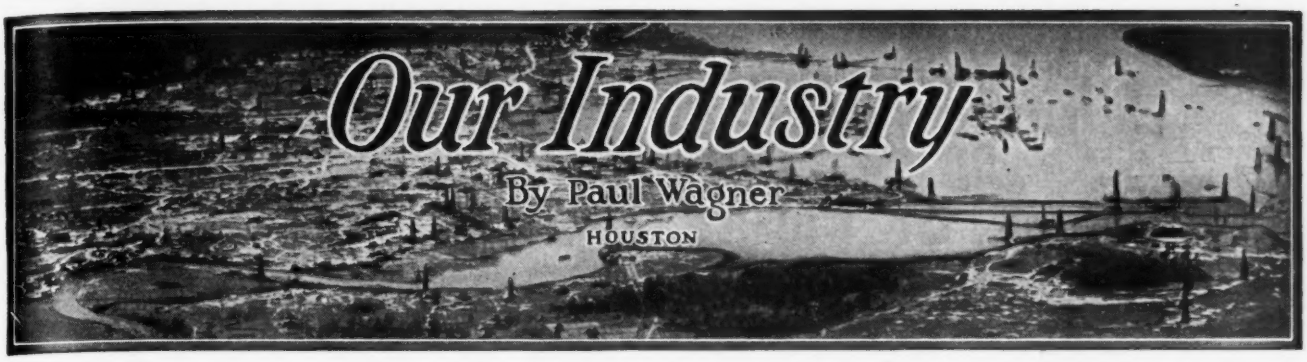

THE California Petroleum Corp. of Venezuela, born in California and chartered in Delaware, is now operating in South America. It is a subsidiary of The Texas Corp., which owns part interests with the Union National Petroleum Corp. and the Richmond Petroleum Co., in the first three holes put down by the group in Venezuela. A fourth well now drilling is under contract to the Martin Engineering Co.

D. Eugene Park, formerly of Putnam, Texas, a civil engineer by profession, divides his time between Maracaibo and Caracas as The Texas Corp.'s representative. He is assisted by Chester Cassel, of Los Angeles, a Leland Stanford graduate, as chief geologist; George A. Severson, formerly of Tulsa, in direct charge of field geology and geophysics; Earl H. Loller, of Nashville, Tenn., petroleum engineer, transferred from The Texas Co. of California; Alfonso Liquori, civil engineer, formerly of Bergenfield, New York; Arthur R. Montagu, civil engineer, formerly of Port Stewart, Ireland; O. S. Shaw, drilling supervisor, formerly of Port Arthur, Texas; J. R. Carroll, accountant, formerly of Houston; and others.

* * *

M. E. Waldron, in charge of Louisiana Oil Refining Corp's. production and pipeline activities, had charge of crude oil transportation for 10 years before taking over his present greater responsibilities. He joined the "Loreco" organization in 1915 and became superintendent of pipelines in 1918. Meantime, he was engaged in various activities at the Bossier City refinery and as Caddo district foreman of the pipeline department. He became manager of the pipeline department in 1918. He is a native of Ruston, Louisiana, where he was born in 1888.

* * *

Harry Duvall, formerly of San Antonio, has been transferred to South Africa as district manager of the Gardner-Denver Co., sailing from New York City about Sept. 1.

* * *

Lone Star Gas Co. employes take an active part in civic affairs of the town of Petrolia, Texas. R. L. Denny of the production department is mayor; F. D. Posey and E. T. Wolfe are school trustees.

* * *

E. B. South, in charge of the Lone Star Gas Co.'s drilling operations at Shamrock, started in the oil country as a boy building roads in Washington county, Pennsylvania. Later, he worked for the South Penn Oil Co., in West Virginia, and in 1905 joined the Southern Ohio Gas Co. He migrated to Texas in 1918, afterwards drilling in Oklahoma, Kansas and Louisiana. He went to Shamrock in 1928.

M. E. Waldron

* * *

H. M. McComber, recently placed in charge of Texas-New Mexico operations of the Getty Petroleum Corp., as vice president and general manager, has moved the company's offices from the Electric building to the W. T. Waggoner building, Fort Worth.

* * *

William Victor Vietti, West Texas petroleum engineer of The Texas Co.'s producing department, has been transferred from Midland to Wink, where he will make headquarters.

* * *

I. C. Jared, purchasing agent of the Sun Oil Co., Dallas, accompanied by Mrs. Jared, spent a vacation period in August visiting New Mexico, including the Carlsbad Cavern.

* * *

O. W. Brakefield, formerly of the Pryse, Ky., refinery of The Texas Co., has been transferred to the Amarillo, Texas, plant.

* * *

Paul Reid, direct representative of a number of oil field equipment companies at Houston, has moved his offices from the Second National Bank building to the Merchants & Manufacturers building, where he also warehouses stocks.

* * *

Frederick F. Lahmeyer, of The Texas Co.'s, Charleston, South Carolina terminal, had the distinction of driving the first stake there in 1910. He is now engaged in carpenter work. He is a native of Bremen, Germany, born in 1869. He located in Charleston in 1889 after coming to this country from Lima, Peru.

Belridge Well Opens Large Area For Future Prospecting

LOS ANGELES, Oct. 10 RECOMPLETION of the Belridge Oil Co.'s No. 15, on Sec. 26-27:20 in the Belridge district was the most important event in California fields during the past week. On Oct. 7 it came in with an initial flow of approximately 2000 barrels of 55 gravity oil and between 40,000,000 and 50,000,000 cubic feet of wet gas. The gas runs nine-tenths of a gallon of casinghead gasoline per 1000 cubic feet.

This well was finished at 5475 feet 503 feet below the former level. Its yield has since increased to 3000 barrels of high gravity oil, with gas at 50,000,000 cubic feet. Pressure on the tubing is 800 pounds, and the casing pressure is 1600 pounds. The well is producing through four 1¼-inch beans.

Operators look upon the completion of Belridge No. 15 as the biggest event that has occurred in the Belridge-Lost Hills district in years. A vast new area for future prospecting, extending from the McKittrick area to the Kettleman Hills field has been opened. While executives of major companies are careful not to overestimate the effect of the recompletion, they point out that through it the offsetting property belonging to the Richfield, Continental and Union Oil companies is now practically proven.

Although the Belridge Oil Co. apparently intends to be conservative in its development of the area, the fact that its holdings in both the north and south Belridge district are owned in fee will permit unlimited prospecting and drilling.

Although this company controls the bulk of the territory surrounding the well, Union, Continental, Ohio, Standard, and Richfield have important holdings in the district. Richfield apparently stands to benefit most with 480 acres in fee and 12,000 in the entire district under control. Rio Grande has the second largest block, 2000 acres, in the southwestern part of the area, and its test well the Yellowstone No. 1, has had such terrific gas pressure that a blow-out is feared.

Completion of Belridge No. 15, however, does not seem destined to affect materially the production averages of the field at present. With the possible exception of the Richfield well, Belridge No. 1, which is now in the Temblor zone, it is doubtful whether any other wells will come in before the first of the year.

Covering a 10-year period, a contract has been closed by the Barnsdall and Rio Grande oil companies for delivery to Southern Counties Gas Co. of a minimum of 38,402,000,000 cubic feet of dry gas from the Elwood lease. Under the contract at least 2,590,000,000 cubic feet of gas must be delivered during the first year which starts Nov. 14, 1930, and, throughout the remaining nine years, a yearly delivery of 3,178,000,000 cubic feet must be made.

Oil men regard this as the most important gas contract that has been closed in several years, and believe it verifies claims made by the operators of the Los Angeles Basin that the decline of natural gas in the major Basin fields—such as Signal Hill and Santa Fe Springs—would be so swift as to make the state gas act virtually inactive in Los Angeles Basin fields within a year.

IN THE Los Cerritos District northwest of Signal Hill, eight wells were completed with an aggregate output of 7500 barrels to increase the proration difficulties of that field.

Associated Oil Co., at a site four miles south of Coalinga in the Jacalitos Canyon in Sec. 22-21-15, has set up a steel rig for a deep test of the district. Previous tests have disclosed some oil.

In the Venice field a 3000-barrel well was brought in Oct. 8, on leases owned by the Mohawk Oil Co. This well has turned attention of oil men to the north end of the field, whereas up to now discoveries have followed a southerly trend. The well produced at the 6440-foot level, and the oil tests 24 gravity.

CALIFORNIA oil field operation reported during the week ending October 4, 1930, showed 28 new wells started, as compared with 24 during the previous week. Of the 28 notices to drill filed this week, 11 were for wells in the Playa del Rey field, four in the Long Beach field, five in the fields of Kern county, and two in Tulare county. Lawnsdale, Santa Barbara county, Santa Cruz county, Coalinga, Kettleman Hills, and Kings county had one each. Total new wells this year is 713, as compared with 1031 at the same date last year.

As a result of the entrance of eastern capital and the projected organization of the Midland Exploration Co. here, the Gertrude Barbour 30 acres adjoining the Shell Oil Co.'s Dixon No. 1 well in Sec. 36-21-17, North Dome of the Kettleman Hills field may soon be the scene of new developments. Reports state that major companies are desirous of taking over the Barbour lease and that drilling will start within 90 days.

Because of troublesome activity in the Los Cerritos district, northwest extension of Signal Hill, the daily average production in California showed an increase of 5000 barrels daily from 584,700 to 589,700.

Because of the group of 1-well operators whose wells are being deepened in the new 7500-foot zone discovered by the Italo Petroleum Co.'s Gem No. 2, the Los Cerritos district pre-

sents one of the most perplexing problems in the state. Since these operators have no other producers, they cannot be allotted more than their proportionate share of the curtailment. Umpire Neil Anderson believes that unless nature, through a natural decline of the gas, comes to the rescue as it has in the Venice field, the increasing number of completions will force up the field's pegged allowable.

Recent completions in the townlot portion of the Playa del Rey field have not materially affected the proration scheme, as some former producers have fallen off in production.

Kettleman Hills Operators Consider Unit Plan

LOS ANGELES, Oct. 10.—In spite of an all day session on Oct. 3, members of the Kettleman Hills operators' committee adjourned without reaching any agreement. Several more conferences will be needed according to William Reinhardt, chairman of the committee, before any definite agreement can be reached. On Oct. 15 the oil and gas conservative committee will meet in San Francisco in an attempt to reach a lasting agreement.

No statement of the issues developing the Oct. 3 meeting was made, but Mr. Reinhardt did state that the proposed proration of present producers that would limit the field to 15,000 barrels daily was not considered. The entire time was devoted to a discussion of the unit plan which the committee has been considering for several months.

Denying the legality of the state's attempt to confine the natural gas of Kettleman Hills, attorneys representing 28 owners and operators in that field began their arguments in an effort to have set aside the injunction suit which the state director of natural resources filed eight months ago.

Superior Judge S. L. Strother of Fresno, sitting on the case, decided that the two questions to be determined were: Whether the state has the right to exercise power at all, and whether it can exercise it reasonably. Consideration of these points will consume the better part of the week and it is the general opinion of attorneys that arguments on the two questions will follow the same lines as those advanced for the Santa Fe Springs gas case which is now before the Supreme Court awaiting decision as to the constitutionality of the gas law.

California Gas Law Still Inoperative

LOS ANGELES, Oct. 9.—With more than a year elapsed since it became a law, the California conservation law still is not enforced. Several pending court cases covering enforcement in various fields are awaiting action of the state supreme court on writs obtained by various independent operators.

The Santa Fe Springs case has been postponed for hearing until Nov. 12 by Superior Judge Hazlett. The Signal Hill case is set for Nov. 17 but is expected to drag on several months.

Richfield Reported In Merger Deals

LOS ANGELES, Oct. 11.—Morning papers carry further stories on the possibilities of a consolidation of Richfield Oil Co. and some major company. It is understood that the Richfield Oil Co., after considering proposals for purchase of a minority interest by other companies, is now seriously considering two offers involving consolidation. Union Oil Co. and Tide Water-Associated Oil Co. are named as the tentative bidders.

If the Tide Water Associated discussion progresses favorably, Richfield lands and properties will be appraised and then terms of exchange will be offered.

It is understood that the tender from the Union Oil Co. involves an exchange of stock along the lines of figures exchanged by the companies in recent months. Rumors of a Richfield-Union consolidation have been current for some time but inability to agree on terms has always killed the trade.

Operators believe Richfield's position has been greatly improved through the recent recompletion of Belridge Oil Co.'s No. 15. Richfield's 480 acres near the well and its 12,000 acres in the district are promising. Other companies are anxious to take part in the play if an advantageous consolidation can be arranged.

In view of the rumored Sinclair and Tide Water-Associated consolidation, it seems likely that Richfield stockholders under a union with the Tide Water-Associated would eventually receive Sinclair shares.

Sells Half Interest In Kettleman Lease

CLEVELAND, Oct. 9.—Amerada Corp. will receive $8,000,000 for a half interest in its 160-acre King lease in Kettleman Hills, California, E. L. De Golyer, chairman, and A. Jacobsen, president, have written stockholders. Union Oil Co. is the purchaser. It will pay one-half in cash or short term obligations, and one-half from 50 per cent of Union's share of the production, free of all expense to Amerada. The two companies will share equally the development costs of the lease.

The lease was bought by Amerada last year for $400,000 of which half was paid in cash and the remaining half is to be paid for out of production.

The two officers said the sale was not to be considered in any sense as liquidation of capital assets. They advance the assertion there is no substantial difference between the depletion of a property through the sale of the oil as produced, and the sale of a proven leasehold.

Amerada owns all or holds a substantial interest in 1,311,911 acres of undeveloped lands exclusive of its Venezuelan properties, they announced.

WASHINGTON, Oct. 13.—Rear Admiral Frank Taylor Chambers, an engineer officer of the navy, has been appointed to the place made vacant by the death of Rear Admiral Harry H. Rosseau in charge of the naval oil and oil shale reserves. In addition he is to become a member of the technical advisory committee of the Federal Oil Conservation Board.

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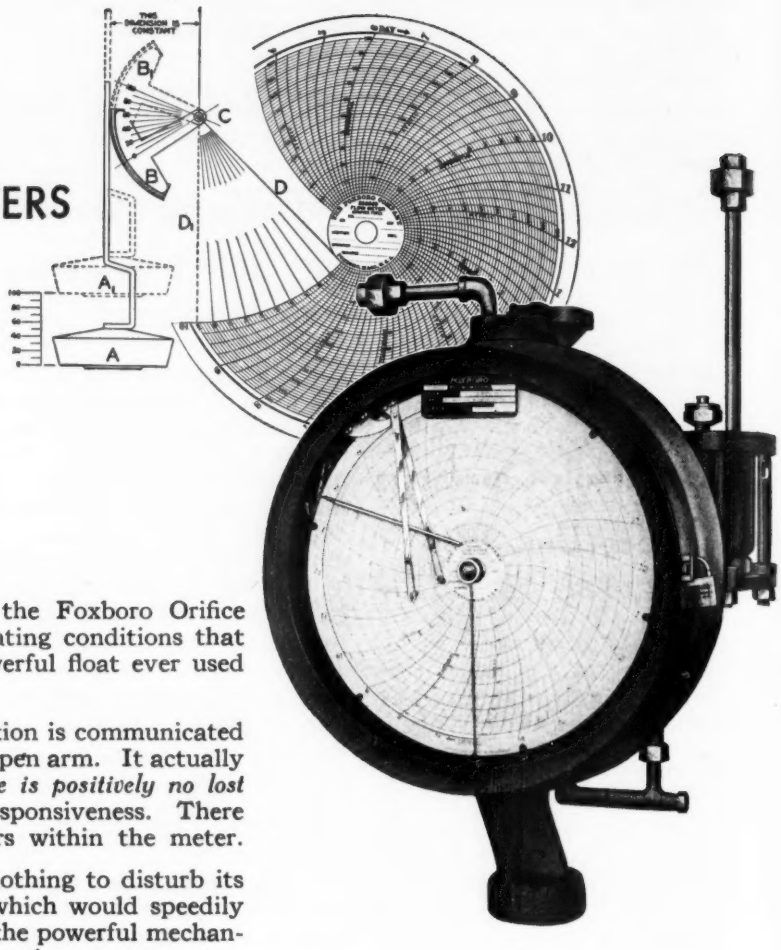

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Powerful, Simple, Responsive, Accurate! To these four great qualities others can be added. The pen travel and scale chart are uniform. The instrument is easy to take apart and reassemble, easy to clean, easy to zero and low in maintenance cost.

It is built in three standard differential ranges—20, 50 and 100 inches of water, and can be furnished with a Direct-Reading Integrator, if desired.

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An Open Letter

Mr. Walter C. Teagle,
26 Broadway,
New York.

My Dear Mr. Teagle:

I was thinking about you last Thursday and wondering whether your ears burned that day. You see we had our big tariff parade, which was a curious contrast of busted producers in 16-cylinder Cadillacs and pumpers in Fords. I didn't count the cars in the parade, but you can be certain that whatever the newspapers said about it, there weren't that many.

Anyway, they got a little personal with you. One of the cars in the parade was a truck and inside they had a big bull of some make or other—I think it was Guernsey. On the side of the truck they had a sign which said "Teagle's Annual Message to the Independents."

Now my idea is that you are getting a lot of unnecessary criticism by some people. So far as I know you, nor your company, made no protest when our band of stalwarts were in Washington trying to get Senator Blaine to decree a duty on oil. Some other companies had filed briefs in protest, yet they are not mentioned in the parades. Well may you ask why this is, and I'll give you my theory.

You have a nice, euphonious, rippling sort of name that sticks in everybody's mind. It is very easy to say. If it were Rozenzweig or Pagliacci or something like that, nobody would ever remember it and when they had a parade or got out another issue of the "Candle"—that little sheet out here whose publishers are too modest to reveal their identities—then you would never be mentioned. If you care enough about the whole business, you might change your name to something filled with consonants and aspirates and I don't think you would ever get any more publicity.

Well, aside from all that, we are having a struggle getting the tariff movement to sit up and take nourishment again. Wirt Franklin supplied all the pep last winter, but he has been very busy drilling oil wells at Oklahoma City the past six months and seems to lack the time.

Several of the other leaders are quite busy. Pat Malloy is making speeches over the radio, coming right in between the A. B. C. Safety Club and the Fuller Brush man. Several new ones have been admitted to practice in the tariff movement and it is darkly hinted that certain Paladins of Petroleum are about to unleash their checkbooks for the Cause. The editor of the Tulsa Tribune is trying very hard to get T. P. Gore, who is running for the Senate, to say that he is against the tariff, but I doubt the success of this move.

All in all, there will be some developments in the battle this winter. Headquarters of the association are to be moved from Ardmore to Tulsa and the campaign probably will be worked into quite a lather by Spring. Some of the boys think they can get the lame-duck session of Congress to open the subject again, but I doubt it. Lame-duck sessions are usually devoted to the preparation of a record on which the crippled ones may run two years later. That generally means a new postoffice or highway appropriations—something the voters can have pointed out to them.

Now, I hope you will not be publicly embarrassed any further and I want to make a suggestion. If you will just come out and say you don't give a durn either way on this tariff business, we will set out to find another goat. You know this proration business will have to be settled somehow and as long as there is no tariff, they will keep right on complaining to the courts. We all know that if every barrel of imports were cut off, we would be overproducing again just as soon as we could get around to it, which would be within 48 hours. But we then would have nobody to blame but ourselves and maybe we again could be just one big, happy family.

Sincerely Yours.

* * *

F. R. Abbey, president of the Sands Petroleum Co., has completed one of his trips to the general offices of the company in Tulsa. Mr. Abbey lives in New York.

* * *

Harold E. Wamsley has been promoted by the Skelly Oil Co. to be superintendent of production for the Kansas division. He succeeds W. I. Geery, resigned. Mr. Wamsley has been in the Skelly organization for seven years and during the past year has had charge of core drilling in Kansas. The company's Kansas producing headquarters are just west of El Dorado.

* * *

Natural Gas Engineering Co., Tulsa, has been awarded contract by the Southern Natural Gas Co. to lay 67 miles of 12¾-inch line from Mobile, Ala., to Pensacola, Fla. Mobile is now served by the Southern Natural through its large system which is supplied by the Monroe field in Louisiana.

* * *

J. M. Kessler, Oklahoma City, announces a proposal to merge the Kessler Petroleum and the

Kessler Oil companies. It will be submitted to stockholders in the next month. Included in the properties of Kessler Oil Co. is a half interest in eight wells in the Oklahoma City field the other half is owned by Hall-Briscoe, Inc. The new company will be capitalized at five million dollars.

* * *

L. D. Wyant, refinery engineer, is going a-traveling once more. He leaves Tulsa for New York, whence he will sail for Santa Cruz, on the island of Teneriffe, which is one of the Canary Island group off the coast of Africa.

There the Bethlehem Steel Corp. and the C. D. Roberts Engineering Co. have been building a refinery for the Spanish government and Mr. Wyant will be in charge of its operation for several months, or until such time as all operating conditions have been worked out and it is ready to turn over to the owners.

After that Mr. Wyant will proceed to France to do similar work at a refinery to be built by the same people for the French government. He has had much refining experience, both in the Mid-Continent and the Argentine. In the latter company he supervised the construction of a plant for English interests and operated it for more than two years. Recently he was affiliated with the Smith Engineering Co., Kansas City.

* * *

W. P. Jacobi, manager of the petroleum purchase division of the Wadhams Oil Corp. recently returned to his Tulsa offices. He was absent on a combined business and vacation trip to Wisconsin.

* * *

C. C. McDermond, of Maracaibo, Venezuela, is in Tulsa as an official representative of the Venezuelan government to the International Petroleum Exposition. He made the entire journey by airplane, by way of Panama and Mexico. He has been in Venezuela for several years and has been closely identified with the recent big activity in development.

* * *

Continental Supply Co. has started construction of its new building in Tulsa, North Main St. and Katy railway tracks. It will be near the company's warehouse. Storeroom and display space will occupy the first floor and offices will be on the second floor.

James G. Cloud, of Tulsa, who has been elected president of the Independent Petroleum Association of Oklahoma. Mr. Cloud is an Independent producer and a director of the Sunray Oil Corp.

* * *

Married: Miss Margaret White, Tulsa and Darrell M. Putnam, Wichita. Mr. Putnam is on the geological staff of the Producers & Refiners Corp.

* * *

Died: In Ada, Okla., Wyley Banks, 26 years old. He was scout and land man for the Blackwell Oil & Gas Co.

* * *

With traditional ceremonies, the Osage Indian tribe adopted Frank Phillips, president of the Phillips Petroleum Co., giving him the name of Eagle Chief. He is the first white man ever to be given tribal rank by the Osages. The occasion was the fourth annual reunion of the Cow Thieves and Outlaws association—no reflection upon the past of any who was there—and the "convention" was held on the F. P. ranch, owned by Mr. Phillips, near Bartlesville. There was a barbeque and stomp dancing.

* * *

Died: Near Kelleyville, Okla., Hiram C. Wilson, 45 years, president of the Wilson Petroleum Corp. While supervising the drilling in of a well he was caught in a boiler explosion. His widow and four children survive him.

* * *

Sid A. Dellaplain has been elected vice-president and general manager of the Southland Royalty Co., Ponca City. He succeeds the late Press B. Lowrance as general manager but no president was elected. Mr. Lowrance held that position also. An executive committee to assist Mr. Dellaplain was elected. It consists of E. W. Marland, John S. Alcorn and Baird H. Markham.

This company in its present form is the result of a merger of the old Marland Employes Royalty Co. and the Southland Royalty Co. It was voted to discontinue the offices in Fort Worth and conduct all business from the Ponca City office. A dividend of 15 cents per share on the 990,000 shares outstanding was voted. This is 10 cents under the dividend rate that has been paid for some time.

* * *

Several executives of the Transcontinental Oil Co., which was merged into the Ohio Oil Co., are establishing themselves in Tulsa. Foster D. Parriott, who headed Transcontinental from the date of its organization, has taken offices on the twentieth floor of the Philtower and with J. S. Hanlon, his former assistant, will re-engage in the oil business. J. C. Adams, former vice-president in charge of the legal department, will engage in law practice, with offices in the Philtower.

M. W. Bottomfield, former vice-president, has just returned from a vacation in California, and will enter the oil business again as will E. D. Robinson, former treasurer. L. B. McCammon, who as vice-president of the Transcontinental, had general charge of refining and sales, remains with the Mid-Kansas Oil & Gas Co., Ohio's subsidiary.

A. J. Slagter continues as refinery superintendent and H. J. Scott remains as general sales manager. John Ford, superintendent of production, has resigned. Few other changes have been made.

ADVERTISING PAGES REMOVED

Automatic Control of Wet Gas Wells Effects Production Economies

By William F. Lowe
N. P. N. STAFF WRITER

AN INGENIOUS method for automatically producing wet gas wells has been perfected by the engineering department of the Indian Territory Illuminating Oil Co, of Bartlesville, Okla. Not only does the method control the volume of production, but it also strips the gas of its water content before allowing it to enter the gathering system. The devices used for the purpose are simple in design and are automatic in operation.

The company has large blocks of gas acreage in the Osage and it is on wells in this area that the new method is being installed. Compared with other gas fields, the wells in the Osage are not large, their initials averaging around 8,000,000 cubic feet. They are, however, consistent and have decline curves that are decidedly above the average. Some of these wells were drilled as far back as 1918 and are still producing commercial quantities of gas.

The average depth at which the gas pay is encountered is about 1850 feet. For the most part, the wells are cased with 6-inch, and tapered strings of tubing are then run. Originally, packers were placed on this string, but their use has been discontinued for various reasons. It is felt that they are no longer necessary, and the difficulty encountered in pulling the tubing after long periods of submergence made the packers undesirable.

Most of the gas wells of the Osage make water in varying amounts, a fact that has been responsible for the difficulty in producing them. This water is not all in the pay sands but is found also in the formations above. Much of the upper water is cased off but the column standing in the hole is sufficiently high to warrant the use of the syphon system of production.

The syphon line is run inside the tubing and is also a tapered string. In a majority of the wells the pipe sizes used are ¾-inch to 1-inch, though some have 1½-inch to 2-inch, and one well has a combination of the last three sizes. The line is run to an average depth of 1500 feet and swings free from the stuffing box connection at the top of the tubing. It is through this line that most of the gas and water is produced.

Both the tubing and the syphon line are connected to the automatic drips, though it is seldom that both are opened at the same time. As a rule the smaller line is capable of delivering all the gas and water that the well will produce. In some wells, however, where the fluid level is low, an orifice plate may be placed in the tubing connection to the drip and some gas allowed to pass direct.

In order to determine the hook-up of these wells it was necessary to make a detailed study of each individual well. Among the more important factors are, water level, shut-in pressures, volume, and general condition of the well. With this data in mind the size of the drips needed could also be determined though these vary considerably with conditions.

The accompanying sketch and photograph show the general layout. It will be noted in the drawing that the drip is composed of two parts, one above the ground and one below. Both are made of 9-foot

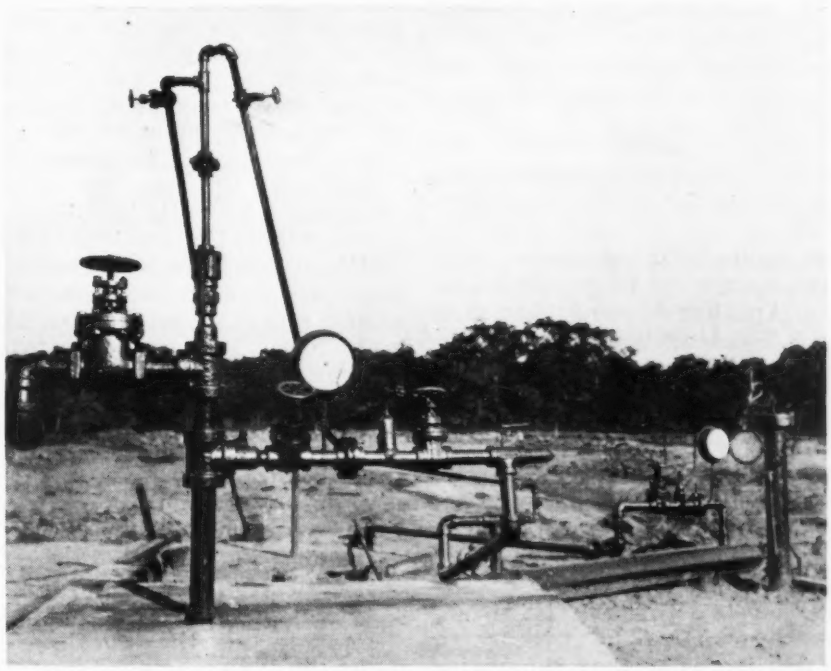
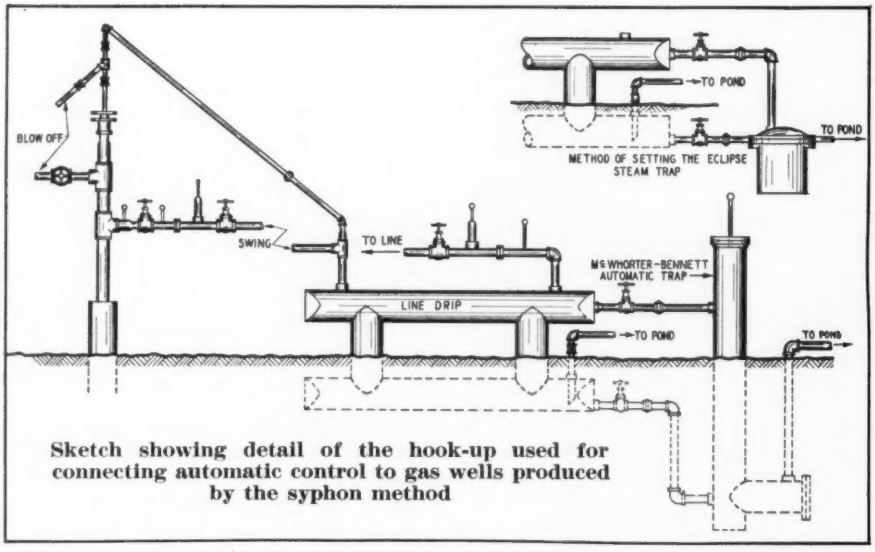


Photo showing the hook-up of wet gas wells in the Osage. Note the drip on the ground to the right and the trap which automatically controls the blow-off of water. The evaporating pit may be seen in the center background. Orifice flanges are shown adjoining both gauges



Sketch showing detail of the hook-up used for connecting automatic control to gas wells produced by the syphon method

lengths of junk 6-inch casing and are connected near the ends by welded sections of the same size pipe, approximately two feet in length.

The 1-inch connection on the right of the lower section is the water line to the automatic trap. In some cases a steam trap is used with equal success though the volume of water to be handled determines which of the two is to be installed.

A similar line runs from the upper section of the drip to the upper portion of the trap. This is a gas line and is used to maintain a pressure above the float of the trap equal to that on the water below.

As the drip water rises in the trap, the float trips a valve and the excess water of both the drip and trap is blown out into the slush pit. If the well is making a large amount of water, special arrangements are made for its evaporation.

Spray nozzles on top of 10-foot risers in the center of a pit have been used to good advantage. Another method is to sink a 15-foot length of 12-inch casing at a low point in the evaporating pond. This skims the water and a surprisingly large amount is thus absorbed in the rocks below.

The size of the pipe used for the drips varies with the amount of gas and water to be handled. The velocity of the gas passing through is also a factor. It must be withdrawn slowly in order that the water may have time to settle in the drip casing. A 10-inch pipe can pass a volume of 800,000 cubic feet per day when a pressure of 200 pounds is maintained.

Lowering the pressure causes the gas to move too rapidly and it carries over some of the water brought from the well. In some instances drips have been made of 18-inch casing in order to meet the requirements of a well.

From the drip the gas passes into the low pressure gathering system through an orifice plate flanged into the line. The volume to be delivered by each well is predetermined and the size of the orifice made accordingly. The recording gauges shown in the photo, are not concerned with volumes but are registering pressures inside the tubing and below the drip. It is not necessary to gauge the volume withdrawn from individual wells in a great part of the Osage for most of the gas leases are blanket in nature.

Since all of the gas taken from some 50 wells is delivered to one plant, the smelter of the National Zinc Co., at Bartlesville, it is only necessary to gauge the gas put through the main line. This gives the total volume withdrawn from all leases.

Once the gas wells are connected and working properly they continue to operate without change for long periods. Little attention is paid to them outside of daily inspection and the collection of the pressure charts.

Considering the number of wells and the wide territory over which they are distributed, the number of men required to attend them is surprisingly small. The whole system is economical and seems to approach as near to the ideal as it is possible to bring it.

Andian Corp. Has New Executive

TORONTO—L. P. Maier, who was chief engineer during construction of the Andian National Corp., Ltd., pipeline in Colombia, was elected vice president Sept. 26. Mr. Maier had been transferred to the executive office in 1928 as assistant to the president. In July, 1929, he was elected a director, according to J. W. Flanagan, president.

On Sept. 1 A. H. Weisgerber resigned from the Andian as secretary-treasurer to join the Ajax Pipe Line Co., Tulsa. H. A. Burgon, who had been assistant secretary-teasurer, succeeded Mr. Weisgerber.

INDEPENDENCE, KANS.—Prairie Pipe Line Co.'s deliveries for September totaled 4,246,591.73 barrels, a daily average of 141,553 barrels. In August the company's daily average deliveries were 171,769 barrels.

East Texas Wildcat Well Makes Four Heads

HOUSTON, Oct. 9.—The East Texas wildcat discovery well of C. M. Joiner and others, in the Juan Ximines survey, northwestern Rusk county, which first showed for commercial production a month ago, was tested Oct. 3, making four "heads" totalling 90 barrels after setting casing at approximately 3586 feet in Woodbine pay. The well would not flow the following morning.

In Gulf Coastal territory, the Bennet Production Co.'s No. 1 Poole, on the Allen salt dome, Brazoria county, is the first good well ever found on that structure. At 4389 feet, it produced 1500 barrels of 43 degrees, A. P. I. gravity, crude through three-eighths inch choker.

Before the Bennett interests took over Allen dome properties of Shell Petroleum Corp., the last mentioned company completed a number of indifferent wells on the structure.

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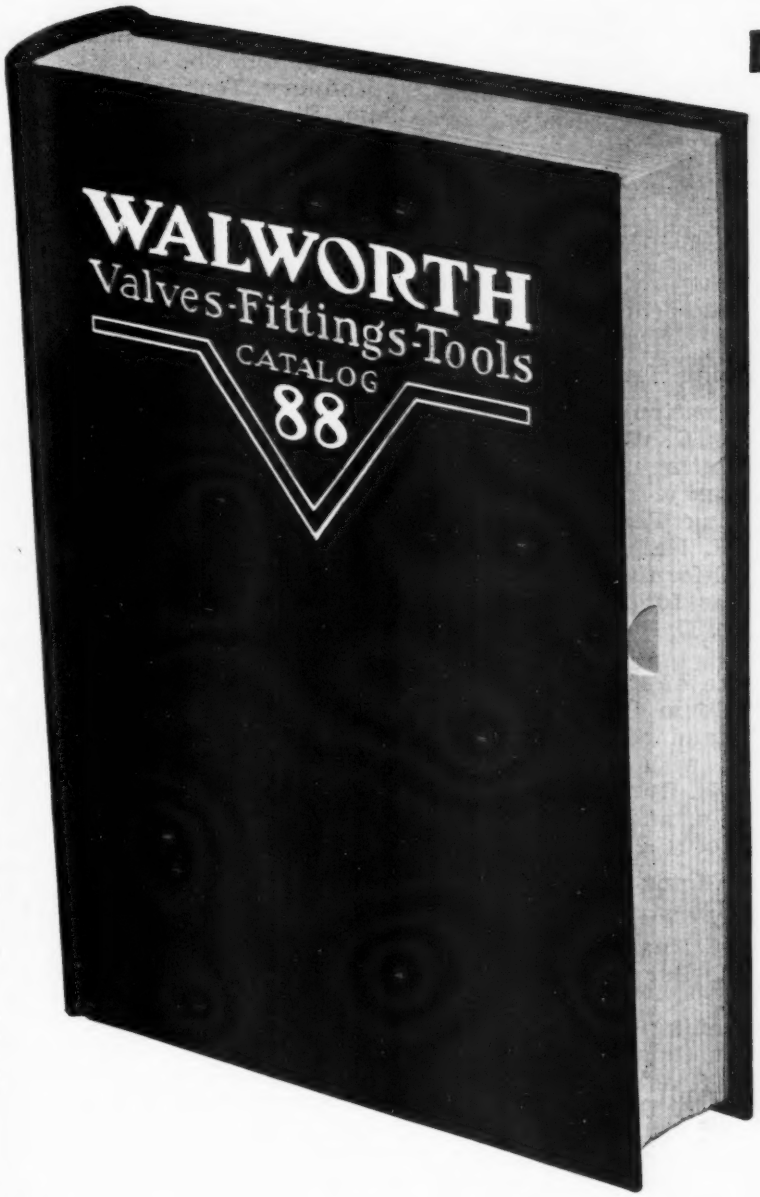

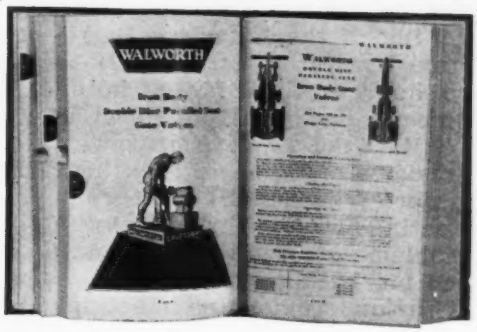

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Unit Operation, Hydrogenation, Code Have Place on A.P.I. Program

NEW YORK, Oct. 9

PRELIMINARY program for the eleventh annual meeting of the American Petroleum Institute Nov. 10 to 13 to be held at the Stevens hotel, Chicago, has been announced by W. R. Boyd Jr., executive vice president. Each of the three major divisions will hold group meetings with papers discussing problems of producing, refining and marketing activities.

Various committee meetings start their sessions Nov. 7 and group sessions begin Nov. 12.

Addresses announced for the group sessions and speakers are:

Drilling, Production and Pipeline Transportations Sessions

Selection of Oil Well Casing Based on California Practice, J. R. Signoux, Shell Oil Co.

Improvements in Production Practice, W. W. Scott, Humble Oil & Refining Co.

Welding High Carbon Steel. (Speaker to be announced).

The Mechanics of Oil Well Pumping. H. E. Dralle, Westinghouse Electric & Mfg. Co.

Unit Operation

Land and Lease Aspects of Unit Operation, John P. West, Prairie Oil & Gas Co.

Santa Fe Springs, California Field—A Comparison Between Competitive and Unit Operation, John Franklin Dodge, University of Southern California.

Unit Operation in the Van (Texas) Pool, R. B. Kelly, Pure Oil Co.

Engineering and Economic Phases of Unit Operation, T. E. Swigart, Shell Oil Co.

Corrosion of Oil Field Equipment

Report of Production Corrosion Committee, E. P. Bly, Chairman.

Report on Bureau of Standards Soil Corrosion Work of 1930, K. H. Logan, Bureau of Standards.

Report of A. P. I. Research Associate, Gordon N. Scott, U. S. Bureau of Standards.

Pipe Protection—Why and How, Underground Pipe Protection Institute (presented by W. H. T. Thornhill, secretary-treasurer).

Pipe Line Corrosion, J. F. Putnam, Standard Oil Co. of California.

Corrosion of Production Equipment. (Speaker to be announced).

Refining Engineering

Determination of Evaporation Losses, G. W. Chenicek and W. G. Whitman, Standard Oil Co. (Indiana).

Protecting Tankers by Flue Gas, H. H. Hall, Standard Oil Co. of California.

Flue Gas for Reducing Fire Hazard, A. E. Pew, Jr., Sun Oil Co.

Influence of Fire Hazards in the Petroleum Industry, C. H. Haupt, Standard Oil Development Co., with the collaboration of O. H. Gundlach, Sinclair Refining Co. and W. W. Lowe, H. L. Doherty & Co.

Motor Fuel

Progress Toward a Uniform Method of Measuring Detonation, T. A. Boyd, General Motors Corp.

The Meaning of the Gasoline Distillation Curve, Graham Edgar, Ethyl Gasoline Corp.; T. A. Boyd; and J. B. Hill, The Atlantic Refining Co.

Relation of Diesel Engine to the Petroleum Industry, W. H. Graves, Packard Motor Car Co.

Petroleum Refining

Control of Color of Petroleum Oils by Acid Treating, H. M. Weir, W. F. Houghton and F. M. Majewski, The Atlantic Refining Co.

The Catalytic Reactions of Organic Sulfur Compounds, H. S. Taylor, Princeton University.

Hydrogenation of Oils—Standard Oil Development Co.

The business session of the refining division will include a report by W. M. Irish, chairman, general committee, and reports of chairmen of standing committees, as follows:

Corrosion of Refinery Equipment, Walter Samans, The Atlantic Refining Co.

Disposal of Refinery Wastes, A. S. Russell, Standard Oil Co. of California.

Fire Prevention in Refineries, C. H. Haupt, Standard Oil Development Co.

Refinery Technology, E. W. Isom, Sinclair Refining Co.

Safety in Refineries, C. W. Smith, Standard Oil Co. (Indiana).

Standardization of Refinery Equipment, Henry Thomas, The Sun Oil Co.

Testing Methods and Specifications, K. G. Mackenzie, The Texas Co.

Marketing Problems

Safety-Mindedness—A Profit Factor in Marketing, G. S. Boetsma, Standard Oil Co. of New Jersey.

The Practical Application of the Code, J. E. Dyer, Sinclair Refining Co.

The Spirit of the Code, E. S. Hall, Standard Oil Co. of New Jersey.

Dealer Observance of the Code, H. D. Collier, Standard Oil Co. of California.

Reports of regional code committee chairmen will be given and a general discussion of the code and its administration.

Automotive Transportation

Advertising Value of Automotive Equipment, Charles H. McBurney, Marathon Oil Co.

Economics of Automotive Transportation, A. F. Coleman, Standard Oil Co. of New York.

Automotive Route Studies, Eugene Power, Union Oil Co. of California.

Report of Committee on Automotive Transportation, J. F. Winchester, chairman.

The business session of the marketing division will include a report by H. M. Dawes, chairman of the general committee, and reports of chairmen of standing committee, as follows:

Disposal of Marketing Wastes, O. H. Gundlach, Sinclair Consolidated Oil Co.

Fire Prevention in Marketing, R. A. Wotowich, Cities Service Oil Co.

Railroad Transportation, Fayette B. Dow, National Petroleum Association.

Safety in Marketing, R. E. Donovan, Standard Oil Co. of California.

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Fig. 1—Large vessel being towed up a river in a tropical swamp

Flexibility in Cracking Operation Essential for Profits

TULSA

FLEXIBILITY in operation, to manufacture the product or products most profitable under market conditions existing at any particular time, is the prime prerequisite in the design of a cracking plant, as expressed by L. C. Huff, Universal Oil Products Co., in discussing the subject before the Exposition meeting of the American Society of Mechanical Engineers at Tulsa this week.

According to the author, the by-products from cracking govern in great measure the mode of operation which should obtain in any given case.

In localities, or at times, where coke is salable at a profit, and the income from a greater yield of gasoline plus that from the coke formed in non-residuum operation is greater than that which might be derived from a smaller yield of gasoline and a quantity of heavy fuel oil, then coking operation should be used.

In other localities where coke is not in demand and where possibly fuel oil may be sold, then a non-residuum method of operation will prove the more advantageous.

A newer type of operation of Dubbs units has been employed under comparatively recent conditions, referred to by the speaker as the "low level operation" method. Regarding this method he says, "This method of operation is adapted to cracking heavy fuel oils where it is desired to produce a residual fuel oil of low viscosity and low B. S. content with somewhat lower yields of gasoline. The volume in the reaction chamber is held relatively small and the oil is withdrawn before the heavy ends crack down to form pitch and coke. Gasoline yields of 33 per cent to 40 per cent are obtained on heavy charging stocks, at the same time producing a good residual fuel oil."

The accompanying table shows the results obtained in this operation on West Texas residuum and also on California residuum.

The author observed that the disposal of coke is becoming a more important matter during the last year or two, and that significant strides are being made in developing new methods.

New equipment for using coke as pulverized fuel under stills and boilers enables the refiner to profit from his coke even when it cannot be sold in the open market. For this use its high B.t.u. value and low ash content make it an acceptable fuel for pulverizing

The author paid tribute to the efforts of the manufacturing and equipment companies in aiding the refiner to solve the troublesome problem of corrosion in cracking apparatus. The seriousness and importance of this ever-present problem is

Low Level Operation—Dubbs Cracking Process

Charging Stock	West Texas Residue	California Residue
Gravity °A. P. I.	21.4	18.6
% Off @ 572°F	10.0	13.0
Operating press. lbs./sq. in.	180.	175.
Hours on stream	379.0	430.0
Oil charged—total bbls.	57,318.0	71,150.0
Oil charged per 24 hrs. on stream	3,630.	3,971.0
P.D. produced % oil charged	42.95	46.47
P.D. gravity °A. P. I.	56.5	49.1
437°F E.P. gasoline produced % P.D.	86.5	74.8
437°F E.P. gasoline produced % oil chgd.	37.15	34.76
P.D. bottoms % oil charged	5.80	11.70
Residuum produced % oil charged	55.43	46.41
Residuum gravity °A. P. I.	13.7	7.0
Residuum % B. S. & W.	0.4	0.4
Residuum Viscosity Say. Fur. @ 122°F	39.0	596.
Coke produced lbs. per bbl. oil chgd.	.026	Trace

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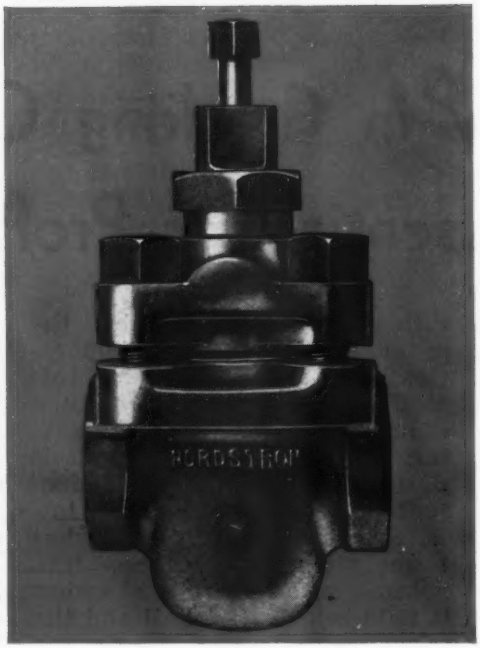
Every Nordstrom Valve is given air tests for leakage and a hydrostatic test for rupture.

There are two air tests—the first at 75 pounds air pressure with valve bodies submerged under water. This detects any porosity of the body castings before complete machining takes place. The second air test is made with air at 150 to 250 pounds pressure, depending on valve rating, and is applied to valves completely submerged under water. This test indicates any leakage when the valve is assembled.

The hydrostatic test proves valve resistance to rupture primarily, and in every case this test is **double** the **cold working pressure.** This test ranges up to 6,000 pounds pressure.

These rigid tests, combined with the patented "Sealdport" method of lubrication adopted for Nordstrom Valves, assures the most efficient valve service under all conditions.



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A distinct advantage of the "Sealdport" method of lubrication is that, if at any time a leak should occur through a properly adjusted valve, the addition of a small amount of "Merco" Lubricant will immediately seal off the leakage. In addition to the prevention of leaks, "Sealdport" lubrication frees the plug should it ever be tight.

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stressed, and the major factors which have been instrumental in combating it were briefly outlined.

"Corrosion has been, and still is today, the worst enemy of cracking plant equipment and although a great deal of progress has been made during the last few years in combatting it, corrosion is as yet the hardest problem the refining industry and its equipment suppliers have to solve," he said.

"Corrosion at high temperatures is usually different from that at low temperatures, and the materials suitable for one are not always suitable for the other.

"One of the most common methods of combating corrosion at present is to protect the surface of the metal subjected to corrosion.

"Many kinds of protective linings and surfaces have been developed and are being used successfully today. Among these are linings of fire brick, ganister and cement, steel plate, alloy plate, paints or thin coatings of water glass and fireclay mixtures, chromium plating, calorizing, etc.

"Vessels as large as 10 feet diameter and 40 feet high have been chromium plated throughout their inner surfaces including nozzles and man-holes, which in itself is quite an accomplishment because of the special equipment required and the quantity of materials needed.

"Small tubes as long as 30 feet have been chromium plated on the inside which required the development of special equipment.

"Another widely used method of combatting corrosion is the neutralization of the corrosive constituents of the oil.

"Caustic soda, lime, ammonia, etc., are being injected into some cracking plants, along with the charging oil, and ahead of condensers for this purpose.

"Even with the most successful corrosion prevention method it is essential that careful periodical inspection be made of cracking plants in order to maintain the equipment in proper shape and eliminate excessive lost time for repairs and replacement."

An interesting sidelight on cracking was given by the author in discussing the handling of heavy cracking equipment, especially in tropical and outlying countries where shipping and handling facilities are usually inadequate.

Fig. 2—Vessels being rolled overland to destination in a tropical country

He stated that frequently large dephlegmators and soaking drums, weighing as much as a quarter-million pounds, are loaded on the decks of vessels in an American port in such manner that they may be rolled off the deck into the sea, or river, at destination. The vessels are made airtight before shipping, and are floated and towed by tugs or other power up rivers and harbors, sometimes to be rolled overland to the site of erection.

Figs. 1 and 2 show the manner of operation under such conditions.

Donnelly and Jenkins Patents Combined

CHICAGO—Through the organization of the Donnelly-Jenkins Co. here, patents relating to the Donnelly Cracking Process for the manufacture of gasoline without formation of carbon have been consolidated with certain patent rights formerly owned by the Jenkins Petroleum Process Co., relating to the same type of operation.

The patents transferred by the Jenkins Petroleum Process Co. to the newly formed Donnelly-Jenkins Co. relate to the Donnelly type of cracking and are distinct from those patents relating to the Jenkins Process, which the Jenkins Petroleum Process Co. owns and is continuing to license as heretofore.

The Donnelly process made its first appearance in commercial form at the plant of the Lemont Refining Co., Lemont, Ill., in 1924.

Claims for the Donnelly process are that formation of carbon or coke is avoided and that it is simple and safe. In a statement by the new company it is asserted that "High pressure and temperature conditions in the heating coil are continued only up to the point where their continuance would involve total decomposition with attendant formation of carbon. Thereupon the oil so treated is discharged into a zone of lower pressure and simultaneously reduced in temperature so as to prevent the cracking reaction from progressing into a condition involving total decomposition with the attendant formation of free carbon.

"This pressure and temperature reduction also controls the 'after reactions' such as polymerization, which would otherwise occur in the zone of lower heat and pressure, due to the contained heat within the oil and the time element involved."

Offices of the Donnelly-Jenkins Co. are at 844 Rush St., Chicago. Officers are J. F. Donnelly, president; U. S. Jenkins, vice president; T. S. Black, treasurer and L. S. Paddock, secretary. The new company will have the services of the technical and legal staff of the Jenkins Petroleum Process Co.

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This action is so thorough that in most cases scale is continuously shed during normal operation, and even the most tenacious scale can be dislodged without the necessity of hand-scaling by simply interrupting the flow of cooling water or hot fluid for a few moments and then starting up again so as to obtain quick temperature change.

This exclusive feature is one of the many important advantages of G-R Bentube Sections that have made them widely popular for condensing or cooling service in connection with cooling towers, sprays, or for submerged operation. Write for bulletin describing Bentube Sections in detail.

The G-R Bentube Section is patented and it is our intention to prosecute all infringements. Suits, charging infringement of our patent No. 1,617,083, have been brought in the U. S. District Courts at Wilmington, Delaware and New York, New York.

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Heat Transfer Apparatus

Cottrell Process Captures Acid Mist from Concentrators

By P. E. Landolt*

(Presented before the American Society of Mechanical Engineers, Tulsa, Oct. 6-8)

USE of electrical precipitation for sulfuric-acid recovery might be termed a classical example of the application of this principle to the cleaning gases. In 1905 at the Hercules Powder Works, Pinole, Calif., and at the Selby Smelting Works, Vallejo Junction, Calif., Dr. Frederick G. Cottrell made his first experiments, which led to the development of the process bearing his name.

The principle of utilizing electric charges to clean or purify gases was first shown by Hohlfeld in 1824. His observations were followed by a number of others until in 1884 Sir Oliver Lodge and an American mining engineer named Walker endeavored to utilize the influence machine to produce the electrostatic field between a system of "electrodes" placed in a flue in a lead smelter in Scotland.

Sir Oliver Lodge continued his work later, using mercury-arc rectifiers to produce a high-potential direct current, with which to energize his electrostatic "precipitator." Sir Oliver Lodge, also, devoted considerable time and effort to the problem of fog dissipation by electro-static means.

Later in 1905 and 1906, Dr. Cottrell was confronted with the problem of eliminating serious smoke nuisance near San Francisco. His investigations finally led to the consideration of the possibilities of electric means of dissipating a smoke, consisting mainly of sulfuric-acid mist, which could not be readily removed from gases by mechanical means. Cottrell saw the necessity of having a dependable source of high-voltage unidirectional current, and applied the mechanical rectifier, running synchronously, and rectifying a high-voltage alternating current of standard frequency. This proved successful, and led to a further development of the electrical-precipitation process for the separation of solids and liquids from gases; in other words, a gas-cleaning process.

* * * *

Sludge Acid Recovery and Concentration

Sludge is a complex mixture of acid, tar, oil, and additional products of sulfuric acid and hydrocarbon compounds. For years the separation of acid from oil and tar was accomplished by water dilution and steaming in open cone-bottom tanks. The particular methods used were modified to meet local conditions, and varied somewhat with the character of the sludge.

This method of separation is satisfactory for the ordinary run of sludge low in soluble hydrocarbons. When 98 per cent to 104 per cent acid is used in treating, or when cracked distillates high in aromatics are treated, this method is no longer satisfactory. Too much carbon remains in solution as soluble hydrocarbon, making concentration of the acid difficult, and in some cases, impossible. The soluble compounds break down as the acid is concentrated, resulting in a viscous mixture of acid and coke that is very difficult to handle. Concentrating yields become so low that recovery of acid is no longer economical.

In order to handle sludge of this nature, pressure separation was developed on the West Coast. By this process it has become possible to handle sludges which cannot be separated in open tanks.

Pressure separation, as the name implies, brings about the hydrolization of the acid sludge with live steam in a closed container. The separator consists of a cylindrical steel tank in a horizontal position lined with lead and chemical brick laid in acid-proof cement. When used as a batch separator the tank is filled by gravity to two-thirds of its depth with sludge and water in the proper proportion. The separator is closed and the batch heated with live steam of 40 to 100-pound pressure, depending upon the character of the sludge.

Due to the temperature of the steam under pressure and the energy of reaction, a temperature as high as 350 F. is obtained and the separation is accomplished. The pressure in the separator delivers the separated acid and thin acid oil, which is formed, through a cooler to the storage tanks, and the process is repeated.

If the separator is operated continuously the sludge and water are pumped into the separator at a pressure equal to the pressure developed in the container. Acid oil and separated acid are drawn continuously from valves at the proper level in the separator. This operation has some advantages over the batch system.

The greatest advantage of the pressure separator over the open separator is that it can handle sludge high in soluble hydrocarbons. It produces a separated acid of higher gravity than the open separator, which

is a decided advantage since it cuts the cost of concentration.

* * * *

Eleven years ago the Chemical Construction Corp. of Charlotte, N. C., developed a recovery process that has met with great success. Concentration of the sludge acid is carried out in two stages. In the original design, the apparatus consisted of two acid-proof masonry towers set into brick-lined lead pans. Hot air, produced by burning oil or gas with an excess of air, was introduced under the surface of the acid through acid-proof iron pipes and concentration was accomplished at low temperatures due to the reduced-pressure effect of blowing air through the acid.

The vapors passed upward through the towers packed with check brickwork, and were cooled by the feed acid that trickled through the tower on it's way to the pans. The cooled vapors then passed through a Cottrell electrical precipitator where sulfuric trioxide and acid mist were completely condensed and returned to the system.

Steam vapors, products of combustion, sulfur dioxide, and hydrocarbon gases passed into the atmosphere. These gases are reduced to a minimum by proper separation of the sludge before concentration. Foaming, which is characteristic of all sludge acid, is eliminated completely by the two-stage method of concentration. Low temperature concentration and the heat efficiency obtainable make the process very economical. A typical operating cost of a plant with a capacity of 40 tons of 66 deg., Baume acid from 32 deg. Baume would be about as follows:

Daily concentration costs	
Supervision—part time 1 man	$7.50
Three operators	15.00
2000 kw.hr. at 3 mills	6.00
2200 gal. fuel oil at 3 cents	66.00
Repairs and upkeep	12.00
Cooling water and misc.	8.00
Interest and depreciation	25.00
Concentration of 40 T. 66 deg. acid costs	$139.50

1 ton 66 deg. Baume acid costs $3.47

Twenty-eight sludge-acid concentrators of the tower type have been built for 16 oil companies in the United States.

Two years ago the same company developed a new concentrator of the drum type. Combustion chamber and both high and low units are contained in a single steel drum. The acid compartments are lead and brick lined while the furnace is lined with fire and insulating brick. The principle of concentration is much the same. Hot air blown through the strong unit compartment is cooled off by passing through the acid of the other unit before going to the electrical precipitator. This eliminates the necessity for masonry packing towers, which caused some annoyance by choking up when poorly separated acid was concentrated.

The upkeep of the drum concentrators is less than that of the lower type. There is no breakage of the acid-proof iron pipes. The precipitators function better since they do not become dirty from deposited carbon. Precipitators on tower type concentrators had to be washed down weekly. This caused a shutdown of two to three hours for each cleaning. A general cleaning of the tower-type concentrators was necessary each month. This required from one to three days, but is no longer necessary with drum-type concentrators.

Thirty-three drum concentrators have been installed at refineries in the United States and 2 foreign countries, to date.

Vacuum Concentrators

At various times vacuum concentrators have been tried with some success for sulfuric-acid concentration. Up to 62 deg. Baume equipment can be used, which is compact and economical in it's operation. In sludge acid where the impurities accumulate and particularly where the acid is carried to 66 deg. Baume, many difficulties are encountered, due to foaming, loss of acid, and the extreme difficulty of finding suitable construction materials satisfactory for vacuum apparatus, and withstanding the corrosion of the acid between 62 and 65 deg. Baume. In the United States, the Simonson-Mantius evaporator has been used with some success.

* * * *

Cottrell Equipment

Briefly the Cottrell process utilizes an electric discharge; produced by a high-potential unidirectional current, from a more or less filamentary surface placed axially in or midway between grounded surfaces more or less extended. The electric discharge is evidenced by a visible corona. The filamentary element is called the discharge electrode, and usually takes the form of a wire or small-diameter rod, and the extended grounded surface is the collecting electrode, and is in the form of a tube or a series of plates. This combination of electrodes forms the treating field for the cleaning of the gases.

Experience has shown that gases may be treated at certain velocities of flow through the treating field to remove all or part of the suspended matter, either solid or liquid. Within certain limits the efficiency of removal decreases as the velocity of the gas through the field increases. For sulfuric-acid mist removal, gas velocities up to 20 feet per second have been used, but ordinarily velocities of 6 to 8 feet per second are found to be conservative for the removal of approximately 95 per cent of the suspended acid mist.

There are two main equipment components in a Cottrell installation; first, the electrical equipment for producing the high-potential unidirectional current, and second, the treating chamber or "precipitator" for the cleaning of the gases.

Usually the electrical equipment consists of one or more sets made up of a special high-voltage transformer, synchronously driven mechanical rectifier, control board, and accessory equipment. This electrical equipment is operated from the plant power supply of 220, 440, or 550 volts, 1-, 2- or 3-phase, 25- or 60-cycle, alternating current. Where only direct current is available a motor generator set is required.

Description of Precipitator

The precipitator consists of a multiple of discharge electrode and collecting electrode combinations varying in num-

ber with the total volume of gas treated, and dependent, also, on the nature of suspended matter to be removed.

For sulfuric-acid mist removal, the discharge electrode consists of a lead-covered star-section iron or copper wire about ⅜-inch in diameter. The collecting electrode is usually a tube or pipe 8 or 10 inches in diameter by 10 to 12 feet long. This tube has heretofore been made of sheet lead, weighing usually 8 pounds per square foot. Lead plates have, also, been used.

Square flues or pipes have also been used and are formed by building an acid-proof masonry tower, of which the flues are an integral part, usually the flues are 8 inches square. These did not prove as satisfactory in practice as the lead tubes. More recently tubes made of electrode carbon have been used with certain advantages over lead.

In connection with sludge-acid recovery, the electrical precipitator really functions as a distilling head or dephlegmator. The collected acid is returned directly to the concentrator, and the freed gases and water vapor are discharged to the atmosphere. Usually the precipitator is operated with a temperature of the inlet gases of 200 to 250 F. From the low-stage concentration unit alone the gas temperature would be 150 F. From the high-stage unit the temperature may reach 400 F.

The average concentration of acid recovered is approximately 41 to 62 per cent H_2SO_4. (35 to 50 deg. Baume.) As high as 50 deg. Baume acid has been recovered, and as low as 15 deg. Baume. Practically all present practice is based on the handling of the combined gases from both high- and low-stage operation. With the new drum-type concentrator the final exit gases are treated, the gases from the high-stage passing through the low stage before passing through the precipitator.

Operating Costs and Recoveries

For a sludge-acid concentrator of the drum type, producing 50 tons of 66 deg. Baume acid per 24 hours from a feed acid of 30 deg. Baume, there would be a total gas volume of ap-

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Dubbs cracking today gets more than twice as much gasoline from a barrel of charging stock as in the beginning, and better gasoline, too; but the royalty rate remains the same

Dubbs royalty is based on the amount of charging stock run—not on the gasoline made

This means that the royalty cost to the refiner has been cut in two

Our Dubbs technologists are always at work helping to increase the yield of gasoline and

to improve its quality The benefit goes to every Dubbs licensee

We are glad of it It is good business for both of us

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

proximately 15,000 cubic feet per minute at 250 to 300 F. This gas would contain 10 to 15 per cent of the acid concentrated, and this acid would be recovered in the precipitator at a concentration of 35 to 50 deg. Baume (41 per cent-62 per cent H_2SO_4), dependent on the strength of the feed acid and the final concentrated acid.

Ordinarily 95 per cent or more of this acid carried by the gases would be recovered in the precipitator, and would be returned to the concentrator. Where the sludge acid contains a relatively high content of hydrocarbons along with sulfur compounds, extra precipitator capacity is provided to remove 99 per cent or more of the acid mist, because this aids materially in the elimination or dissipation of the "smells" produced by the complex sulfur compounds carried in these gases.

There is practically no resistance to gas flow through the precipitator. The gases are discharged after cleaning direct to the atmosphere. The equipment is operated by the concentrator, operators, so there is practically no extra labor charge, except for very large units (100 tons or more.)

The electrical power consumption for a unit for a 50-ton concentrator does not exceed 12 to 15 kw. The high-tension voltage impressed on the rectifier from the special transformer is 60 to 75 kv. The repairs on the equipment should not exceed 1 to 2 per cent of the installation cost.

The first cost is usually about 20 to 30 per cent of the total cost of the entire concentrating unit. This would mean a cost of $4 to $5 per ton of 66 deg. Baume acid equivalent recovered in the Cottrell apparatus, or in terms of the total production, about $0.40 per ton.

Obviously with so large a quantity of acid discharged from the concentrator this acid must be recovered to obtain an overall high recovery in the concentrator, and to prevent damage to plant buildings, nuisance, and damage to adjacent property.

A further application of the Cottrell process for sulfuric-acid recovery should be of interest to the oil-refinery engineer, and, therefore, may be properly discussed here. The quantity of acid required in oil refining is so large that many refiners manufacture it themselves. Usually sulfur is used, which makes the production of acid relatively simple. However, pyrites and zinc blende are often available at a cost of sulfur well below that of brimstone from Louisiana or Texas. The roasted material is used for iron blast furnaces in the case of pyrites, and in the case of blende, for metallic-zinc or zinc-oxide production.

Preparation of SO_2 Gases

In the roasting of pyrites or zinc blende, a large quantity of fine dust and fume is carried along with the gases, and must be removed before the gases can be used for acid manufacture. The quantity of such dust is usually 5 to 10 per cent of the quantity of ore roasted. The roasters are usually of the multiple-hearth revolving type, Herreshoff or Wedge design.

Here the Cottrell apparatus treats these roaster gases at 800 to 1200 F. in a gas-tight, heat-insulated chamber, removing over 98 per cent of this dust, which is usually all finer than 200 mesh, with over 95 per cent finer than 325 mesh.

Such apparatus has become standard in its use both here and abroad. A full discussion of this application is outside the scope of this paper. Such apparatus is used in both chamber and contact-acid plants.

Contact-Acid Manufacture

In contact-acid manufacture after the SO_2 gases are cooled, they must be purified to remove the last traces of solid matter, and also to remove any sulfuric-acid mist suspended in them as well as impurities, such as arsenic, selenium, and other elements or their compounds.

Closely packed coke boxes are used in plants using brimstone as the source of sulfur. Here the principal impurity is sulfuric-acid mist. Usually 1 to 2 per cent of the sulfur is oxidized to SO_3, forming H_2SO_4. In ore-roasting plants about 3 to 5 per cent of the sulfur is oxidized by "contact" to SO_3. The Cottrell apparatus used here is built of lead suspended on steel work. It is gas-tight, and is divided usually into two or three units in series. Here over 99.9 per cent of the suspended impurities are removed, giving an optically clean gas, which is then passed directly to the drying towers, preheaters and contact converters.

The author wishes to express appreciation to F. J. Bartholomew of the Chemical Construction Co. for data used in the preparation of this paper, and also to A. D. Camp of the National Carbon Co. for illustrations.

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NEW PATENTS

Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

September 9, 1930

MISCELLANEOUS

Liquid measuring and dispensing apparatus—Frederic D. & Henry Pfening, Columbus, Ohio. Filed May 24, 1929. No. 1,775,293.

Liquid-dispensing apparatus—George W. Stedwell, Brooklyn, N. Y. Filed June 16, 1930. No. 1,775,411.

Composite motor fuel—Clay M. Hudson, Manila, P. I. Filed Jan. 19, 1925. No. 1,775,461.

Tank for transportation of volatile liquids — Ernst Brainich, Wandsbek, Germany. Filed Feb. 8, 1928. No. 1,775,484.

September 16, 1930

REFINING

Device for prevention of fires in oil stills—Asa F. Cornner and George W. K. King, Coffeyville, Kans. Filed Oct. 17, 1927. No. 1,775,847.

Process for treating hydrocarbon oils—William S. Hadaway, jr., New Rochelle, N. Y., assignor to Texas Co., New York, N. Y. Filed May 16, 1927. No. 1,775,023.

Fractionating tower—John C. Black, Destrehan, La. Filed Nov. 10, 1926. No. 1,776,061.

PRODUCTION

Rotary gear draw works—John A. Young, Torrance, Calif., assignor to National Supply Co., Toledo, Ohio. Filed Mar. 10, 1924. No. 1,775,664.

Pipe-cutting machine — Worthy C. Bucknam, Freeport, N. Y., assignor to Prairie Pipe Line Co., Tulsa, Okla. Filed Dec. 12, 1923. No. 1,775,667.

Well-drill jar—Fred A. Fields, Enid, Okla. Filed June 12, 1928. No. 1,775,673.

Pneumatic counterbalance for walking-beams—John T. Phipps, Huntington Park, Calif. Filed Nov. 4, 1926. No. 1,775,733.

Pump—Robert U. Grant, Breckinridge, Tex. Filed May 10, 1928. No. 1,775,759.

Drilling apparatus—Orville E. Murphy, Shawnee, Okla., assignor of 49 per cent to American Iron & Machine Works, Oklahoma City, Okla. Filed Dec. 3, 1927. No. 1,775,774.

Core-drill construction—Leonard S. Copelin, Los Angeles, Cal. Filed Apr. 9, 1928. No. 1,775,889.

Core-catcher for well-drills—Louis H. Wallensiek, Houston, Tex., assignor to Hughes Tool Co., same place. Filed Nov. 7, 1927. No. 1,775,920.

Underreaming well-drilling bit—Jacob S. Brown, Compton, Calif. Filed Nov. 14, 1927. No. 1,776,018.

Pipe-unscrewing socket—Frank J. Hinderliter, Tulsa, Okla. Filed Oct. 19, 1927. No. 1,776,024.

Casing-ripper—Frank J. Hinderliter, Tulsa, Okla. Filed Oct. 19, 1927. No. 1,776,025.

Knife for use in wells—Frank J. Hinderliter, Tulsa, Okla. Filed Oct. 22, 1928. No. 1,776,026.

Oil-well fishing-tool—Frank J. Hinderliter, Tulsa, Okla., assignor to Hinderliter Tool Co., same place. Filed Mar. 25, 1927. No. 1,776,028.

Eccentric slip socket—Frank J. Hinderliter, Tulsa, Okla. Filed Oct. 22, 1928. No. 1,776,027.

Well-casing holder and elevator—Clarence E. Reed, Wichita, Kans. Filed June 15, 1927. No. 1,776,043.

Earth-boring sampler—Jacob Steigh and Earl F. Choate, Long Beach, Calif. Filed May 31, 1928. No. 1,776,166.

MISCELLANEOUS

Cellular-seal floating-deck tank—Ralph D. George, Kansas City, Mo., Filed June 14, 1928. No. 1,775,758.

Motor fuel—Wilhelm Gaus, Ludwigshafen-on-Rhine, Germany, assignor to I. G. Farbenindustrie. Filed May 7, 1926. No. 1,775,674.

Duplex bubble cap—Julius E. Kobernik, Los Angeles, Cal. Filed Jan. 6, 1928. No. 1,776,032.

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Production of solid lubricants—Wilhelm Pungs, Ludwigshafen-on-Rhine, and Erich Frese, Neuroessen, Germany, assignors to I. G. Farbenindustrie. Filed Apr. 25, 1929. No. 1,776,193.

Foam column—Jules Verner, Linden, N. J., assignor to Standard Oil Development Co. Filed Aug. 31, 1927. No. 7,776,206

Gasoline-dispensing device — John Nelson and Leon C. Gadbois, Minneapolis, Minn., assignors to Butler Mfg. Co., Kansas City, Mo. Filed May 26, 1926. No. 1,776,926.

Oil-rectifier — Simeon C. Kimball, Tacoma, Wash., assignor to Hydro Thermal Oil Renovator Co. Filed Aug. 3, 1927. No. 1,776,234.

September 23, 1930

REFINING

Purification of liquid hydrocarbons—Ferdinand B. Thole and Stephen T. Card, Sunbury-on-Thames, England, assignors to Anglo-Persian Oil Co., Ltd., London, England. Filed Nov. 6, 1924. No. 1,776,340.

Oil-still—William A. Jones, West New Brighton, N. Y., assignor to Babcock & Wilcox Co., Bayonne, N. J. Filed May 23, 1925. No. 1,776,437.

Oil-purification process—Frank M. Chark and Arthur T. Harding, Pittsfield, Mass., assignors to General Electric Co. Filed Oct. 29, 1928. No. 1,776,550.

Deodorizing petroleum hydrocarbon distillates — Lazar Edelenu, Berlin-Charlottenburg, Germany. Filed Jan. 16, 1928. No. 1,776,752.

Manufacture of lubricating oils—Lazar Edelenu, Berlin-Charlottenburg, Germany. Filed May 28, 1928. No. 1,776,753.

PRODUCTION

Corner iron for tubular-steel derricks—Carl H. Besse, Tulsa, Okla., assignor to National Turnbuckle Derrick Co., same place. Filed Mar. 8, 1927. No. 1,776,344.

Derrick or tower construction—Carl H. Besse, Tulsa, Okla., assignor to National Turnbuckle Derrick Co., same place. Filed May 11, 1927. No. 1,776,345.

Rotary underreamer—Swan M. Akeyson, Long Beach, Calif. Filed Nov. 12, 1927. No. 1,776,611.

Floating and cementing plug—Reuben C. Baker, Coalinga, Calif., assignor to Baker Oil Tools, Inc. Filed Jan. 16, 1929. No. 1,776,613.

MISCELLANEOUS

Distillate petroleum liquid (method of preserving gasoline and kerosine against formation of color, odor, and gum)—James B. Bather and Leslie C. Beard, jr., Brooklyn, N. Y., assignors to Standard Oil Co. of New York. Filed Nov. 26, 1926. No. 1,776,598.

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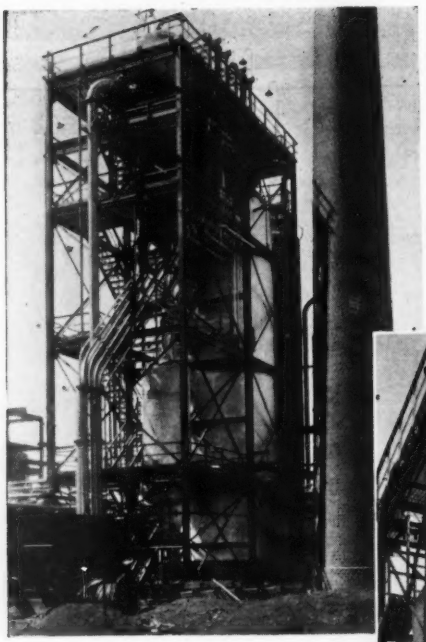

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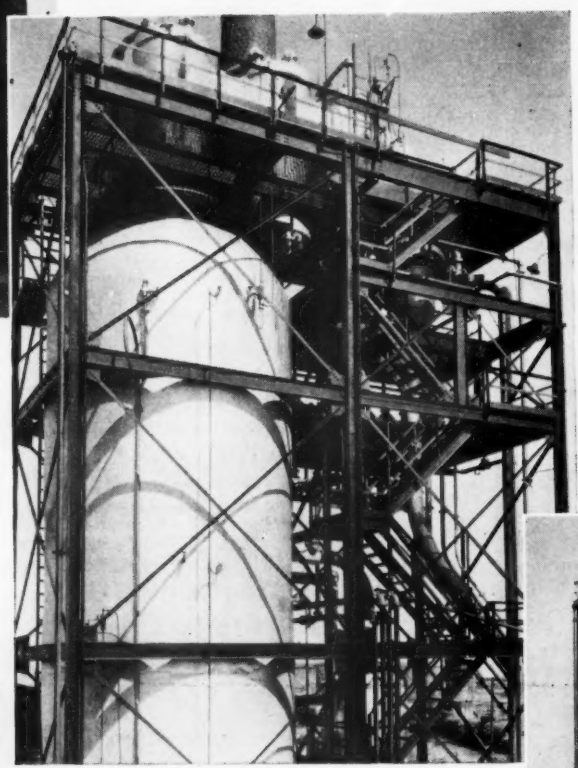

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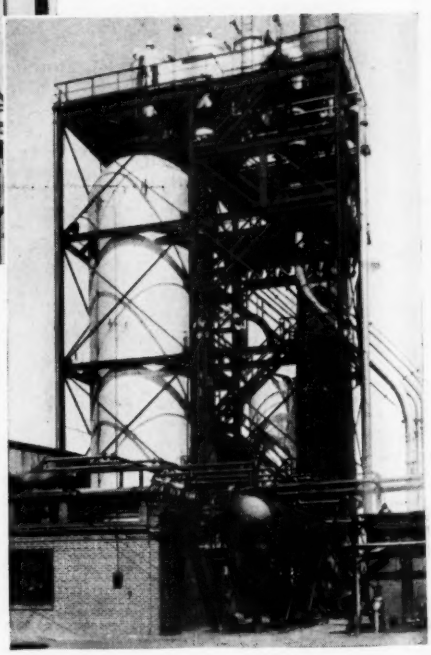

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Combustion Efficiency in Still Operation

By J. R. Darnell*

COMBUSTION efficiency in oil refineries has shown such marked improvement in the past ten years that today with modern furnace designs it is almost on a par with efficiencies obtained in good boiler practice. Whereas in 1920 oil-still furnaces showed thermal efficiencies of 40 to 45 per cent, the 1930 fuel records reveal that efficiencies of 75 to 80 per cent are quite common.

Several factors have been responsible for this really remarkable forward stride. Keen competition with smaller margins of profit led refiners to make a thorough study of operating costs. In a number of localities it was found that the annual fuel bill formed a substantial percentage of the total operating cost.

Today fuel consumption in certain localities averages from 20 to 30 per cent of the manufacturing cost. Naturally these refiners were the first to take steps to reduce this item.

In April, 1919, an oil refining company in the central west called in the fuel engineers of the United States Bureau of Mines to investigate fuel consumption and to devise means of improving conditions.

Cooperative tests conducted throughout 1919 and 1920 were recorded and later compiled as Bulletin 302. The author feels fortunate in being one of the test crew of the bureau at that time, since in all probability this was the first systematic attempt of fuel engineers in this country to improve combustion efficiency in oil-refining operation.

THERMAL efficiency in oil-still operation has increased from a figure of 40 to 45 per cent in 1920 to values of 75 to 80 per cent in 1930.

Bureau of Mines tests in 1919 and 1920 are the first records of systematic attempt at fuel saving. Redesigning of furnaces permitted increases of 30 to 40 per cent in thermal efficiency for shell-still operation. Early air-preheater design gave efficiencies comparable with those today.

Recirculation is generally used with convection-type units, while the "screened" and "all radiant" type units employ air preheaters of both plate and tubular types.

*Sales Engineer, B. F. Sturtevant Company. Assoc.-Mem. A.S.M.E. Presented at the National Petroleum Meeting, Tulsa, Okla., October 6 to 8, 1930, of The American Society of Mechanical Engineers.

Tests With Coal-Fired Units on Batch Stills

Fig. 1 shows a side elevation of a batch still furnace in operation at the beginning of these tests. Note the sharp peak in the heat-transfer curve.

On account of improper air sealing at the rear of the stoker, and also due to the fact that the combustion gases were not made to effectively wipe the surface of the still, only a small portion of the heating surface was effective.

As shown by Fig. 2, changes in furnace design effected a marked improvement in efficiency. The average heat lost to the flue gas when crude oil was topped was reduced from 38 per cent for the furnace in Fig. 1 to 26 per cent for Fig. 2. When wax distillate was rerun, the average loss was lowered from 43 per cent for Fig. 1 to 26 per cent for Fig. 2.

When crude was topped, the corresponding increase in average efficiency was from 44 to 54 per cent, and when wax distillate was rerun, from 40 to 52 per cent. Besides this increase

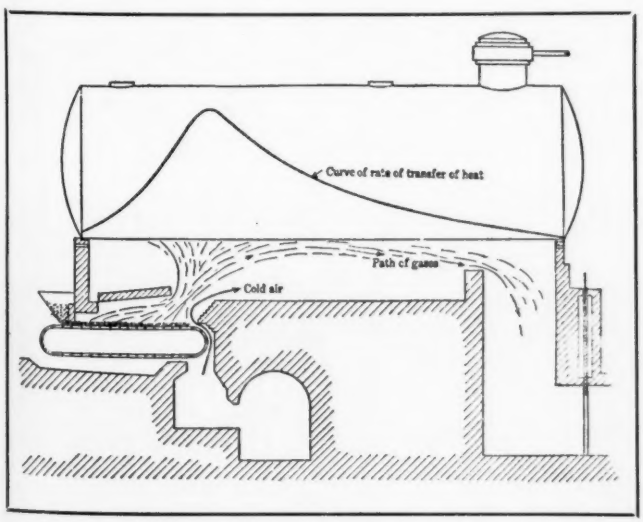

Fig. 1—Original furnace design for batch rerun still

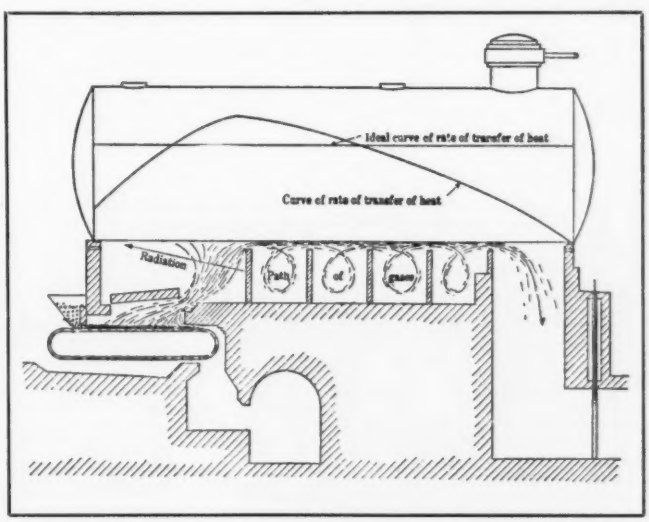

Fig. 2—Improved furnace design for batch rerun still increases efficiency 30 per cent

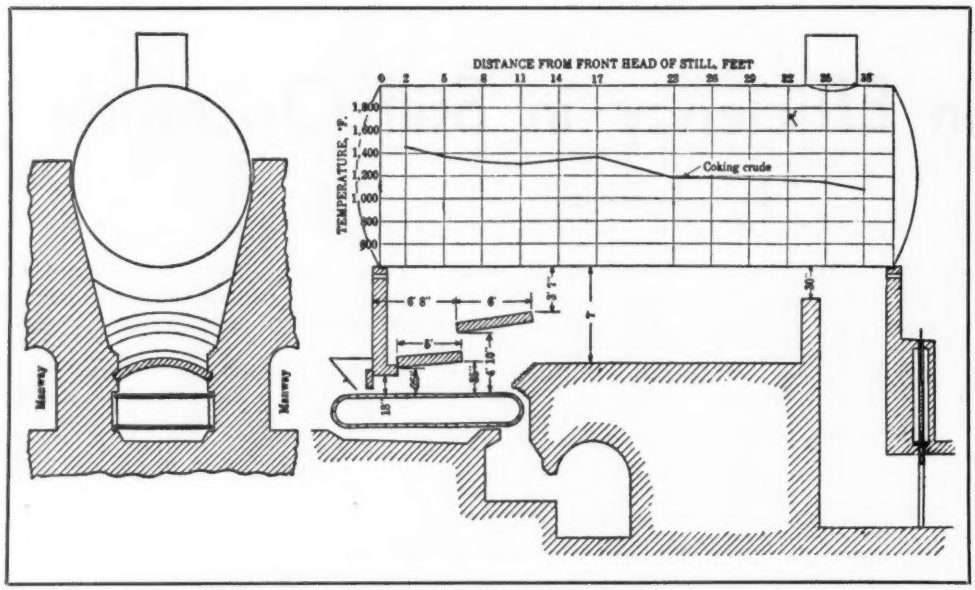

Fig. 3—Batch coke still with original furnace design, stoker fired

in combustion efficiency and resultant fuel saving, production was increased due to the fact that the operating time was reduced approximately 33 1/3 per cent.

Tests With Coal-Fired Units When Coking Crude

Going from the rerun stills to the coke stills, similar improvements in furnace design were made. Fig. 3 shows one of the original coke still furnaces. The same difficulties were encountered as with the rerun still furnace shown in Fig. 1.

It is notable, however, that the temperature of the furnace gas does not show a sharp peak at the rear of the stoker as in Fig. 1, but reaches the highest point 2 feet from the front wall, just over the first ignition arch. The average thermal efficiency when coking crude with this original furnace design was 33 per cent.

With a modified setting, as shown by Fig. 4, the efficiency was brought up to 46 per cent, an increase of 13 points, or almost 40 per cent. Note that similar to the improvements of Fig. 2 over Fig. 1, the bridge wall was extended over the rear of the stoker by means of a flat arch. This aided materially in reducing cold-air infiltration.

Note also the vertical baffle walls as in Fig. 2. The second ignition arch over the rear of the stoker was removed, and a series of shorter deflecting arches, built in steps, were provided. The area of the downtake was reduced, thus adding 6 per cent to the effective heating surface of the still.

Improvements in combustion efficiency thus far noted were due primarily to changes in furnace design. Attention should be called, however, to a factor which has no bearing on furnace design, but which is important in maintaining good combustion efficiency — namely, proper damper control. When tests were first made with the original furnaces, it was found that operators paid little or no attention to the stack damper in the downtake. This damper usually was kept in a wide open position and seldom distributed.

When the stills were being forced, it was necessary, of course, to have the flue dampers practically wide open to accommodate the maximum volume of flue gas. But when stills were

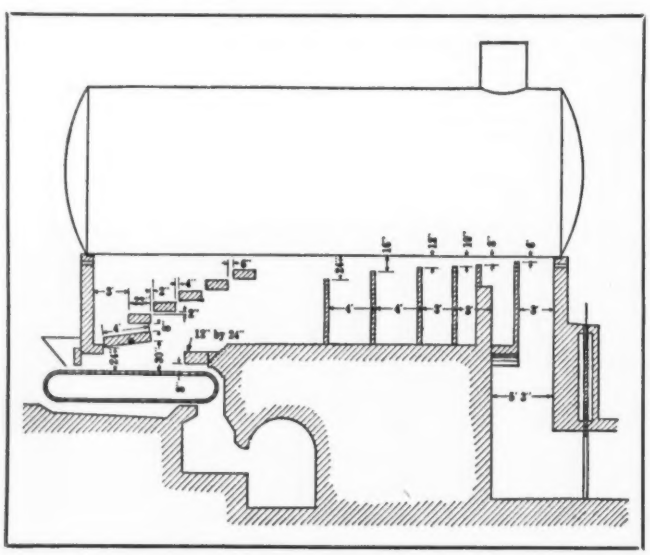

Fig. 4—Improved furnace design for stoker-fired coke still increases efficiency 40 per cent

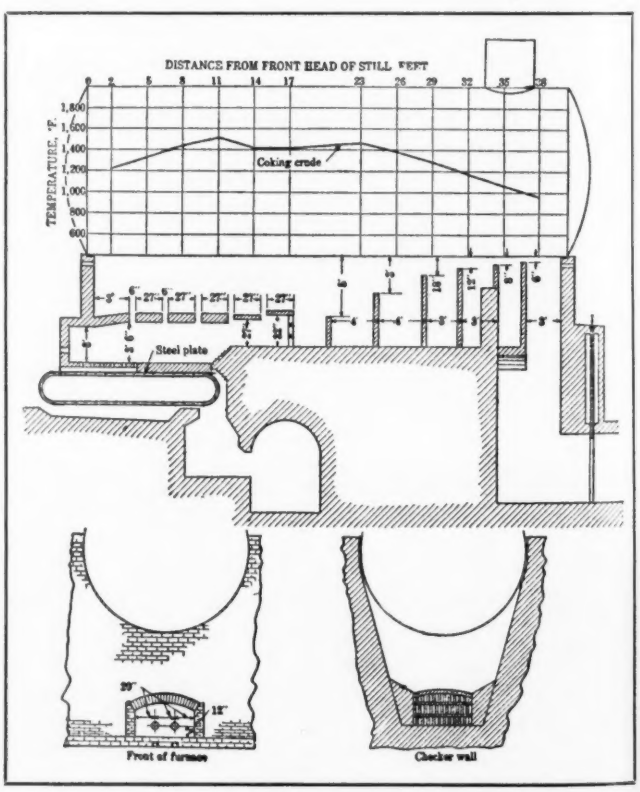

Fig. 5—Oil-fired coke still furnace with improved design has best heat distribution

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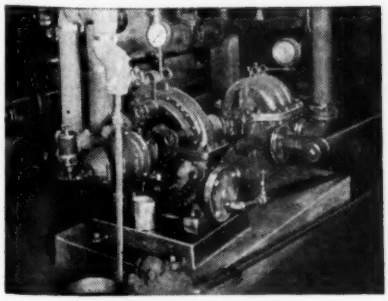

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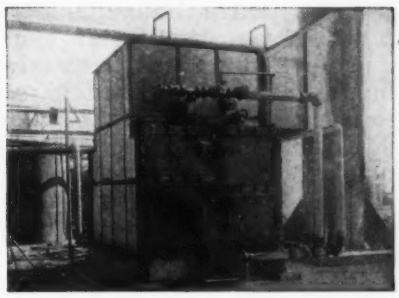

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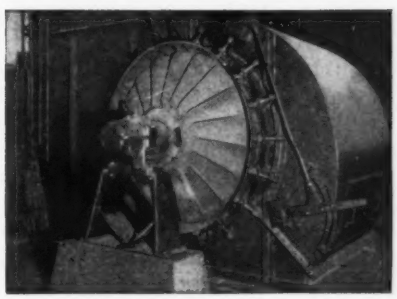

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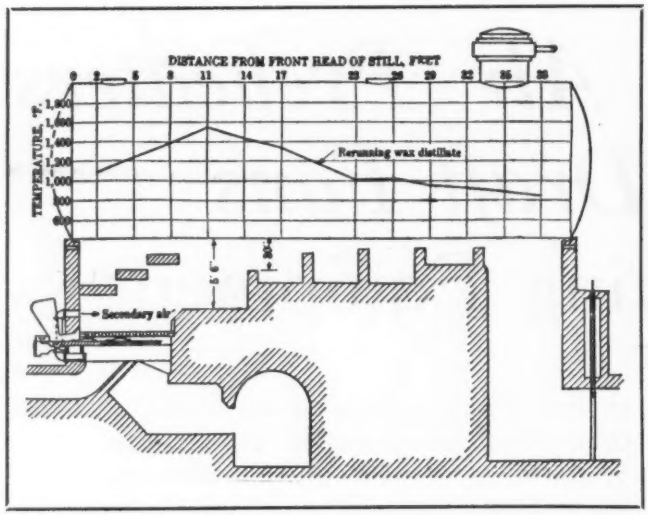

Fig. 6—Furnace design for batch rerun still with single retort underfeed stoker and cold forced draft

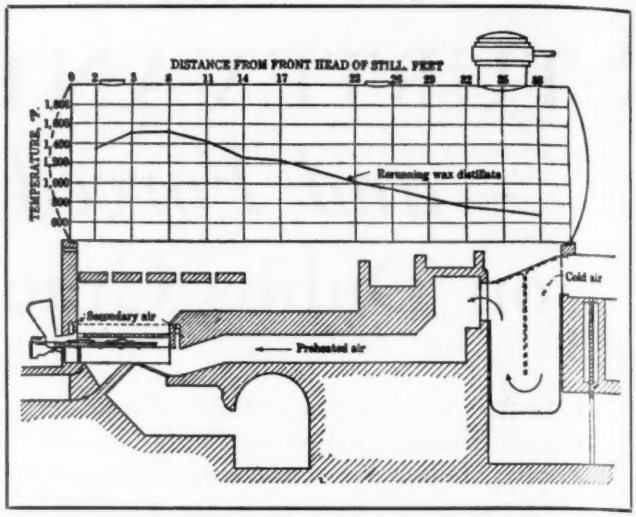

Fig. 7—Preheated air with single retort underfeed stoker increases efficiency of batch rerun still 25 per cent

checked, the coal feed was reduced without any thought of proportionately reducing the air supply.

As a result, the draft in the furnace above the fuel bed was materially increased, and considerable heat was carried up the stack instead of being absorbed by the still. To illustrate to what extremes this might be carried, it is of interest to note that during some of the initial tests, during the time when a still was checked on account of "puking," the dry-gas loss occasionally exceeded 100 per cent. This was explained by the fact that the still and brickwork were cooled down by the excessive amount of cold air drawn into the furnace and actually gave up heat to the flue gas.

Where automatic combustion control is not employed, careful control of the air supply is extremely important.

Tests With Oil Firing When Coking Crude

Tests with a modified furnace design similar to that used for coal firing were made on an oil-fired unit (see Fig. 5). The same chain-grate stoker as used in Fig. 4 was first covered with a steel plate and this in turn covered with a 9-inch layer of firebrick. Two small secondary air ducts were placed in this brick covering, one directly under each burner. Primary air was taken in around the oil burners. An average thermal efficiency of 57 per cent was obtained. Compare this with the 46 per cent for the same still when coal-fired as in Fig. 4.

As shown by the curve, furnace temperatures with this furnace design when burning oil showed better heat distribution under the entire length of still than with any other fuel or design of furnace.

In coke-still operation, the last part of the distillation process, just as the coke starts to form, is the most difficult to handle. If extreme care is not observed at this time, any saving in time or fuel which may have been effected in the fore part of the run will be lost in the latter part.

Immediately after the overhead stream has been cut to the wax pot, the still bottom begins to show dull red in spots, gradually increasing to a dark cherry red color over almost the entire bottom exposed to the fire. With a setting such as shown in Figs. 3, 4, and 5, regardless of the kind of fuel burned, it is difficult to control the heat being absorbed by the still, and the slightest change in fuel feed or air supply may cause blistering or buckling of the still bottom, or the coke may "settle" to a wet, sticky, mass, which is difficult to remove from the bottom.

When this happens, the length of the distillation cycle is prolonged and an excessive amount of fuel is used in attempting to dry out the coke, which, even then, frequently is unsuccessful.

It was found that the best results could be obtained by the use of an auxiliary gas burner during this period. The regular fuel supply could be shut off and this burner alone used to coke the still. If this burner is properly regulated, maintaining at all times a reducing type of flame, the still can be quickly and successfully coked with a small amount of fuel consumption.

An oxidizing flame is difficult to control, and the excess air accompanying the products of combustion is likely to unite with the red-hot still bottom, resulting in bad blistering. A reducing flame, however, can be blanketed over the entire still bottom, and there will be no oxygen present in the products of combustion to cause blistering (see Fig. 8).

Tests With Preheated Air

In order to obtain comparative results with cold and preheated air when firing coal, a single-retort underfeed stoker was installed under a batch rerun still. Fig. 6 shows the furnace design with cold air. An average thermal efficiency of 57 per cent was obtained when rerunning wax distillate.

In order to operate with preheated air, the furnace was redesigned, and a small plate-type air preheater with approximately 2500 square feet of heating surface was installed in the downtake, as shown by Fig. 7.

It may be of interest to note that this was one of the first, if not the first, plate-type air heater used in oil-still operation in the United States. An average thermal efficiency of 71 per cent was obtained when rerun-

ADVERTISING PAGES REMOVED

ning wax distillate. The air heater therefore can be credited with 14 points' increase in efficiency, which is equivalent to approximately 25 per cent.

Reviewing developments, we find that starting with an efficiency of 40 per cent when rerunning wax distillate, we advanced to 52 per cent with changes in furnace design, then to 57 per cent by changing the type of stoker and using cold forced draft instead of natural draft, and then to 71 per cent with preheated forced draft. The total increase in efficiency when rerunning wax distillate was 31 points, or approximately 78 per cent.

Considering the inexperience of engineers and operators with preheated air at that time and the crudity of the preheater design, it is really remarkable that an average efficiency of 71 per cent could have been obtained with a shell still.

Today, with the latest designs of pipe stills, using preheated air, efficiencies exceeding 80 per cent can be obtained without much difficulty.

Auxiliary Aids to Combustion Efficiency

In the past ten years furnace design of itself has advanced to the limit in combustion efficiency, if such mechanical equipment as forced and induced draft fans, air preheaters, and recirculating fans are not employed.

Shell stills are obsolete and today are seldom installed in new units. Tube stills are now used, both for straight distillation and cracking units. Earlier designs of these units, however, operated with comparatively poor efficiency.

Furnace temperatures were kept low by introducing large amounts of excess air in order to prevent overheating of the tubes. Besides high fuel costs there was considerable loss of production due to frequent shutdown periods for tube replacements.

To overcome these difficulties several methods of flue-gas recirculation were adopted. As early as 1917, cracking units were built with a system of steam siphons for recycling a portion of the flue gas in order to reduce furnace temperatures to safe limits. Operators found that temperatures in excess of 1500 to 1600 F. should be avoided, particularly if an appreciable amount of the heating surface received its heat by radiation.

For several years various designs of furnaces of the convection type were built with the sole idea of avoiding radiant heat, even at the expense of inefficient operation and high fuel costs. In general, this was due to the fact that some of the tubes received heat both by radiation and convection, at such high rates that the oil, at comparatively low velocities, could not sweep the heat from the tubes as fast as it was generated.

No doubt if radiant heat alone had been applied to the tubes, little or no trouble would have resulted. But the radiant-type furnace was not to come into prominence for several years.

The sole purpose of the early designs of recirculating furnaces was protection of tubes. Designers of these tubes believed some saving would result, but the inefficiency of the apparatus, particularly if steam siphons were used, did not permit appreciable savings.

One inventor, in his patent application, made the following statement: "I have found by experiment that if the temperature of the diluting gas is approximately the temperature of the waste gases leaving the still surface, not only is there no reduction in the fuel economy and capacity, but on the other hand there is a slight increase in both."

Today cracking units of the convection type which employ recirculation use high efficiency fans, either of the propeller or centrifugal types, to return flue gas to the furnace. Application of these fans not only increases combustion efficiency and saves fuel, but permits milder action of the gas on the tubes and also allows greater throughput with the same amount of heating surface.

It is maintained by some engineers that a discussion of the recirculating furnace is virtually a post-mortem statement; that recirculation is almost a dead issue and should no longer be considered.

It is not within the province

Hydrogenation

appears to be the greatest technological development in the petroleum industry since the advent of cracking. Given economical operation, it may well prove the greatest advance in all petroleum technology, to solve the problem of conservation of crude oil.

The following National Petroleum News articles contain all the important information so far published in this country and the best of that published in Germany on the details and significance of this phenomenal process:

1930

Hydrogenation adds to flexibility of refining Oct. 1, p. 58
Uses and features of hydrogenation Sept. 24, p. 51
Hydrogenation process pictured at Tulsa Exposition Sept. 24, p. 96
Hydrogenation on American Chemical Society program Sept. 17, p. 41
First details of I. G. hydrogenation process Aug. 13, p. 27
S. O. New Jersey hydrogenation plant in operation Aug. 6, p. 22
Hydrogenation process an experiment on commercial scale July 30, p. 63
17 Companies to test hydrogenation process July 16, p. 102
Canadian tar hydrogenated to produce gasoline June 11, p. 34
Hydrogenation discussed by Col. G. A. Burrell Feb. 26, p. 61

1929

Catalysis applied to conversion of hydrocarbons Aug. 7, p. 75; July 31, p. 72; July 24, p. 69.
Hydrogenation to be used first in conversion of fuel oil July 10, p. 27
Costs 26c a gallon to make gasoline from coal Jan. 16, p. 69

1927

How production of oil from coal will affect oil industry Feb. 2, p. 81; Jan. 26, p. 90; Jan. 12, p. 63.

1926

Transforming coal into oil by way of hydrogen Nov. 24, p. 53
Synthesis of petroleum Nov. 24, p. 49
Motor fuel from coal purely from Europe, oil men told Nov. 24, p. 23
Petrol synthesis at ordinary pressure from coal products Oct. 20, p. 80-C; Oct. 13, p. 95

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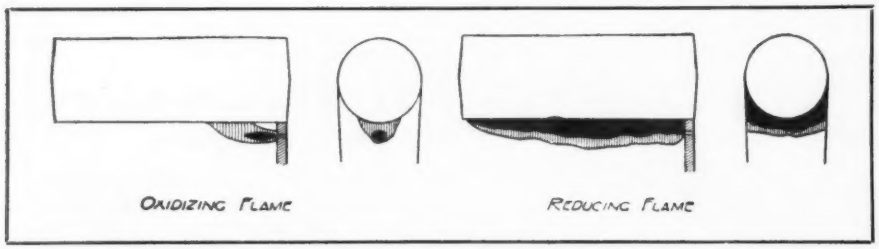

Fig. 8—While still is coking, a reducing instead of oxidizing gas flame is recommended

of this paper to debate the question. The author merely wishes to point out that there are a large number of cracking units of the convection type in service in various parts of the country and that new units are still being installed.

Those units of this type which are not equipped with recirculating fans could raise their thermal efficiency and increase production with such minor changes in furnace design that the cost would be relatively low.

Typical Example of Saving By Recirculation

In a paper, "Mechanical Engineering in Oil Cracking," delivered before this Society at San Francisco in 1926, the late B. N. Broido presented a typical example of the fuel saving which can be effected by recirculation:

"Assume a pipe still for heating or cracking 2000 barrels per day with a fuel consumption of 5 per cent, or 100 barrels a day, or about 1350 pounds of oil per hour. Under normal operation the temperature of the gas reaching the tubes will not be over 1500 F.

"In order to burn oil of about 18,000 b.t.u. per pound and have the resulting gas at a temperature of 1500 F. with 85 per cent furnace efficiency it is necessary to have 45 pounds of gas per pound of oil, or 200 per cent excess air, with a resulting efficiency of the still of 40 to 50 per cent.

"The lower efficiency is due to the fact that the 200 per cent excess air which is used has to be heated from atmospheric temperature to 1500 F. However, only a part of the heat can be utilized in the still, as the flue gas leaves the tubes with a temperature of about 700 F. containing nearly half of the heat.

"When the 1350 pounds of oil are burned with 200 per cent excess air, approximately 61,000 of gas will result, and, as already mentioned, at a temperature of 1500 F. Assuming 35 per cent of the flue gas can be returned to the furnace at a temperature of 700 F. the other 63 per cent will have to be at a temperature of 1950 F. in order to have the same amount of gas at 1500 F. To bring this 65 per cent of gas to the temperature mentioned, however, only 1080 pounds of oil will be required. In other words, with the proposed arrangement there will be the same amount (61,000 pounds) of gas at a temperature of 1500 F. at the entrance to the still, but only 1080 pounds of oil will have to be burned, which means a saving of 270 pounds per hour, or 19.5 per cent.

"With the present price of fuel a saving of 19.5 per cent should be a very attractive proposition, even for oil refineries. As a matter of fact, the saving may be slightly more, due to the higher furnace temperature and more favorable conditions for combustion of the fuel."

In a more recent paper, "The Recirculating Furnace," presented before the American Institute of Mining and Metallurgical Engineers at New York in 1928 by L. A. Mekler, recirculation is discussed in detail and figures are given on the saving possible with various recirculation ratios.

Air Heaters For Cracking Units

Instead of cold excess air, if recirculation is not employed, preheated air may be used to reduce furnace temperature, with efficiencies approaching that of recirculation, if a high degree of preheat is provided.

Both preheated air and recirculation are sometimes used, but it is doubtful if this combination is always economical, although its efficiency cannot be questioned.

Latest developments in cracking units have produced the radiant heat furnace in two designs, sometimes classified as "screened radiant" and "open radiant" types. An essential factor in the control of furnace temperature and the maintainance of high thermal efficiency of either type is the use of preheated air.

Close regulation of highly preheated air effects such an intimate mixture of air and fuel that almost theoretical combustion conditions are realized. With proper furnace design and arrangement of tubes almost all of the heat input to the oil is by radiation. This reduces the furnace temperature so materially that the need for recirculation is eliminated. Excess air, reduced to a minimum, effects smaller gas volumes which result in proportionate reduction in stack losses and increases in thermal efficiency.

Fig. 9 illustrates a plate-type preheater installed on a "screened" radiant-type cracking unit. The preheater was designed for flexibility. Normally, warm air is drawn from under the floor of the furnace to the forced-draft fan. This keeps the brickwork of the furnace floor cool and boosts the preheat.

Directly at the inlet to the fan, there are slots in the duct which can be regulated to draw in cold air directly from the outside, if required. There is also an auxiliary connection to the fan inlet from the stack to permit introduction of a small amount of hot flue gas with the air. Flue gas is drawn through the heater by the natural draft produced by the stack.

In Fig. 10 is shown a nickel-chromium alloy-steel tubular air preheater mounted directly above and "all-radiant" type cracking unit. Almost all of the heat input to the oil is by direct radiation. But there is so much tube surface exposed to direct contact with the fire that the tube temperature is kept to safe limits.

The air heater plays an important part in this by maintaining a high degree of preheat, which permits reduction of excess air to a minimum.

Higher combustion temperatures are obtained, and the increased thermal head means that more heat may be transferred to the tubes by radiation.

It has been demonstrated in both boiler-room and oil-refining practice that preheated air increases furnace temperature and consequently increases the rate of radiant-heat transmission to the boiler in a much greater ratio than where cold air is used. The increased heat-transmission rate has the effect of reducing the flue-gas temperature, leaving the boiler or still to a point lower than it would have been had cold air been used.

New Refining Patents

Treating Hydrocarbons. U. S. P. 1,772,331, August 5, 1930, application filed February 29, 1928; Frank E. Wellman.

PREVIOUS efforts to prevent waste of heat and power in cracking and refining oils have been along the lines of using heat exchangers, countercurrent circulators, bubble towers and the like, for economizing heat. This invention is a departure from prior methods, in that it provides a means of utilizing the expansive energy of the pressure systems used in refinery operations.

Pressure energy represents a considerable part of the power loss in cracking and distilling operations, so that the new idea of recovering mechanical energy as well as heat energy adds considerably to the possibilities for economy in power requirement.

The invention utilizes a turbo-generator unit in such a way that the expansive energy of the vapors or gases in any selected part of the pressure system generates electrical power, which is then used in the refinery operations as needed.

What is Claimed

In treating hydrocarbon oils, conserving energy by heating the oil under cracking conditions in a closed vessel, conducting the vapors under pressure through a vapor line, expanding the vapors and gases through a motor to produce power, and reconverting the power to heat

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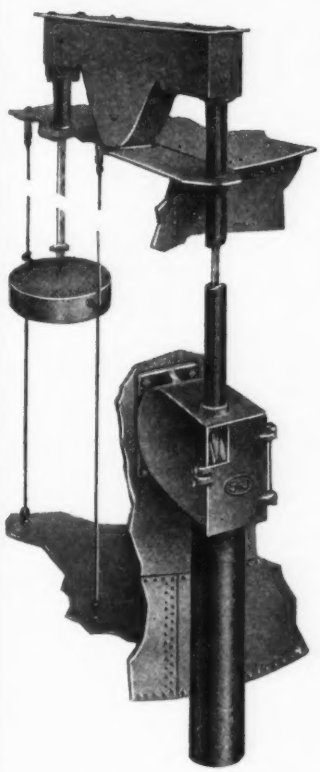

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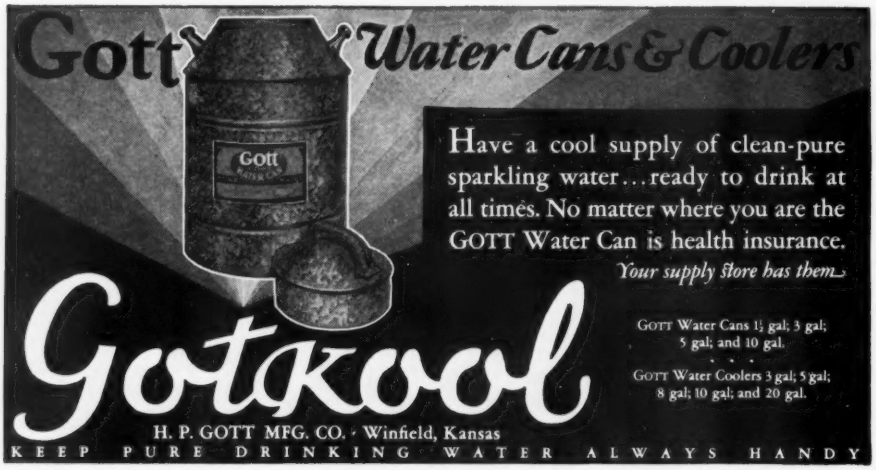
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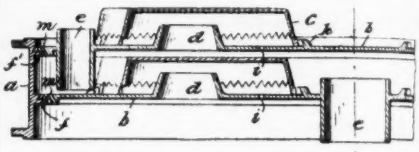
* * *

Distillation Column. U. S. P. 1,772,399, August 5, 1930, application filed March 15, 1926 and in Great Britain March 24, 1925; Arthur Kuhn, Assignor to the Firm Carl Still of Germany.

AN IMPROVED means of securing plates within casings, and vapor distributing hoods to the plates in distillation columns, provides a rigid and permanent connection without screws, bolts or other connecting means likely to cause leaks; yet when disconnection of the parts is desired, it can readily be effected.



As shown in the drawing, this is accomplished by rabbeted joints, for which a calking metal such as molten lead or wool is used. A single ring *a* of a column has within it 2 plates *b* on which are mounted the vapor distributing hoods *c* covering the vapor inlets *d*. The ring *a* has a flange *f* and a narrower flange f^1, permitting the lower plate to pass and rest on the flange *f*.

Each flange has on its upper face a rabbet, on the lower horizontal wall of which rest the bevelled edges of the plates *b*. These edges coact with the inner vertical and lower horizontal walls of the rabbets to form frusto-triangular or dovetail grooves, wider at the base than at the top.

The frusto-triangular grooves *m* are firmly packed with the calking metal. For attaching the vapor distributing hoods *c* to the plates, the lugs *k* and the outer edges of the feet *h* coact to form similar grooves *n*.

To separate the attached parts, it is only necessary to remove the calking metal by mechanical means, or to melt it.

What Is Claimed

Securing together separate parts of distillation columns by providing a support having several opposed parts rising therefrom, and in forming the other part so as to coact with the support and the parts rising therefrom to form trapezoidal grooves, and filling said grooves with calking metal.

ON THE LAZY BENCH

A young traveling salesman put on his most seductive smile as the pretty waitress glided up to get his order and remarked:

"Nice day, little one."

"Yes, it is," she replied. "And so was yesterday, and my name is Ella. I know I'm a pretty girl and have lovely blue eyes. I've been here quite a while and like the place, and don't think I'm too nice a girl to be working here. My wages are satisfactory and I don't think there is a show or dance in town tonight, and if there was I wouldn't go with you. I'm from the country and a respectable girl, and my brother is a cook in this hotel, and was a college football player and weighs 300 pounds; last week he almost ruined a $25.00 a week traveling man who tried to make a date with me. Now what'll you have—roast beef—roast pork, irish stew, hamburger or fried liver?"

—Independent Topics

* * *

Little Boy: "Mother, do they have oil refineries in heaven?"

His Mother: "No, dear; it takes engineers to build oil refineries."—*Barnsdall.*

* * *

An American lawyer was sitting at his desk one day when a Chinaman entered.

"You lawyer?" he asked.

"Yes, what can I do for you?"

"How much you charge if one Chinaman killum other Chinaman, to get him off?"

"Oh, about $500 to defend a person accused of murder."

Some days later, the Oriental returned and planked down $500 on the lawyer's desk.

"All light," he said. "I killum."

—Independent Topics

* * *

Parson: "I was grieved to hear your husband has gone at last."

Mrs. Nags: "Yes, he has, sir, and I only hope he's gone where I know he ain't."—*Indiana Petroleum Marketer.*

Sandy: "The lass in the telegraph office told me there was no char-rge for ma name on a wir-re. So I said tae her, 'I may not look it, miss, but I'm an Indian, an' ma name is 'I-won't-be-home-till-Friday'."

—The Piper.

* * *

And Heaven Help Him!

"Your medicine has helped me wonderfully," wrote the grateful woman. "A month ago I was so weak I could not spank the baby. Two bottles of your cure and I am now able to thrash the old man. Heaven bless you."

—The Diamond

* * *

Mr. Henpeck: "Doctor, my wife's dislocated her jaw. If you're passing out our way sometime next week or the week after, you might drop in and see her."—*Barnsdall.*

* * *

The eighteenth amendment can never be repealed because all of the choice saloon sites have been gobbled up by the oil industry for corner service stations—

What's left have become Tom Thumb golf courses.—*Indiana Petroleum Marketer.*

* * *

Mrs. Willis (sternly, to husband arriving home at 3 a. m.): "What does the clock say?"

Mr. Willis (genially): "It shay 'tick-tock,' and the doggies shay 'bow-wow' and the little pushy-cats shay 'meow-meow.'"

—The Diamond

* * *

The other day a couple of John Willy's Whippets had a head on crash. And the traffic cop reported it as a dog fight. —*Indiana Petroleum Marketer.*

* * *

She: "You've been drinking whiskey."

Amateur Distiller: "Thank you."

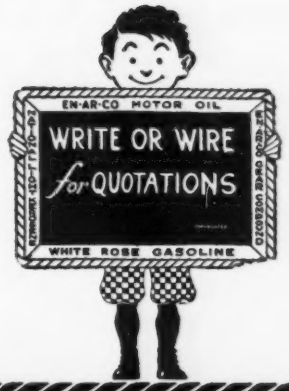
—The Gas Line

* * *

"Did you read about the golfer who was hanged yesterday?"

"Yes, as his last request he asked for a few trial swings."

—The Unloading Rack



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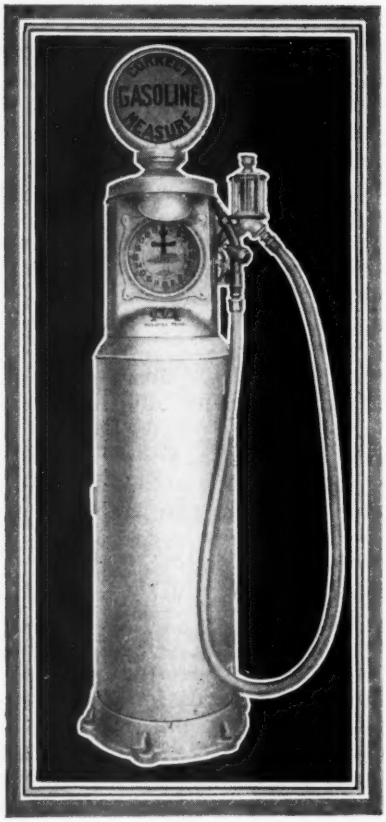

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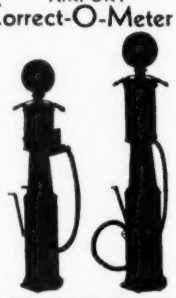
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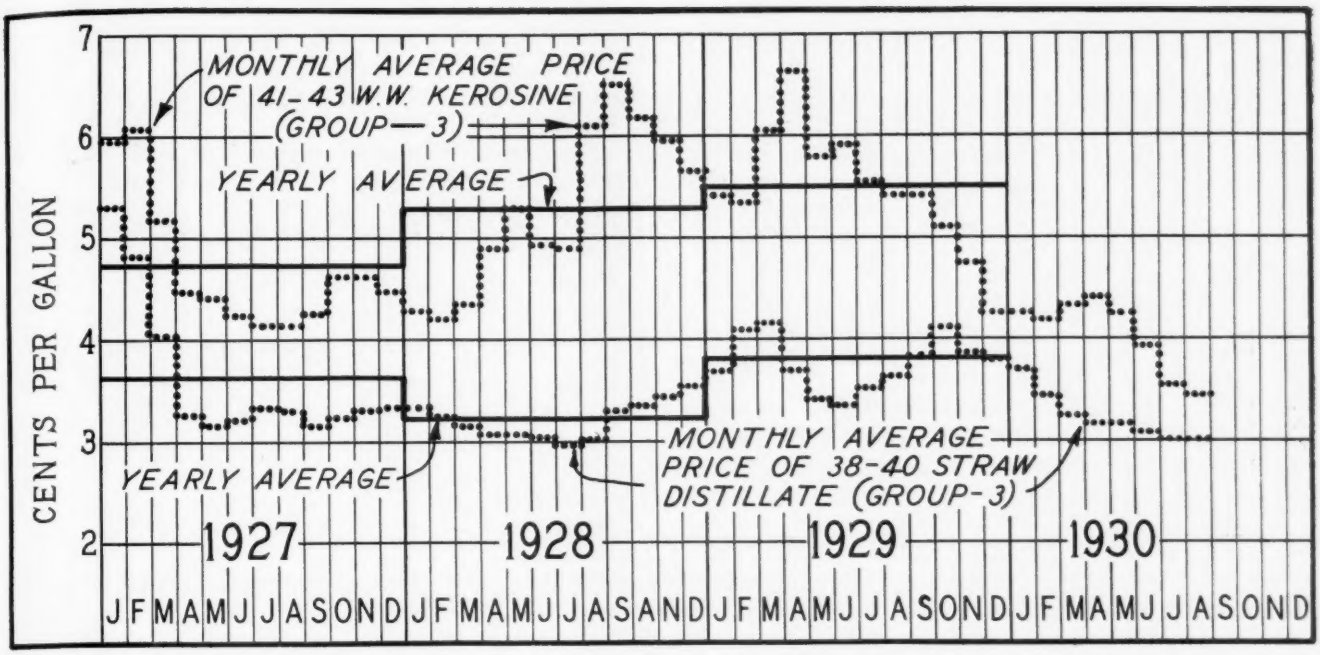

MONTHLY AVERAGE PRICE OF 41-43 W.W. KEROSINE (GROUP—3)
YEARLY AVERAGE
YEARLY AVERAGE
MONTHLY AVERAGE PRICE OF 38-40 STRAW DISTILLATE (GROUP-3)
CENTS PER GALLON
7
6
5
4
3
2
1927
1928
1929
1930
J F M A M J J A S O N D J F M A M J J A S A N D J F M A M J J A S O N D J F M A M J J A S O N D

The influence of kerosine prices on those of distillates this year is shown in the above chart which compares monthly average prices of 41-43 w. w. kerosine in Group 3 (Oklahoma) with monthly average prices of 38-40 straw distillate in the same district. The chart also shows the spread between the average prices of the two commodities by years. Prices were obtained from those carried in National Petroleum News and Oil Price Handbook

Large Increase in Furnace Oil Demand in Mid-Continent

By Allen S. James
N. P. N. STAFF WRITER

TULSA

DEMAND for heating distillates refined in Oklahoma and Kansas for the first 36 weeks of 1930 was far ahead of that for the same periods in 1929, 1928 and 1927, despite the fact that a sluggish kerosine market this year was a decided handicap from the standpoint of price. Distillate production for the same period, however, kept pace with improved demand sufficiently to prevent any reduction of inventories.

These facts are revealed by a study of production and shipments of furnace oil from Oklahoma and Kansas refineries reporting weekly operations to NATIONAL PETROLEUM NEWS. The plants reporting weekly operations and from which the totals were computed represent a majority of the refining capacity in the two districts.

The increase in production and shipments for the first 36 weeks of the past four years together with the per cent of increase, are shown in the following table:

	Prod.	Ship.
1930	41,024	40,409
1929	34,716	32,607
Increase	6,308	7,802
Per cent Increase	18.2	23.9
1930	41,024	40,409
1928	26,168	29,051
Increase	14,856	11,358
Per cent Increase	56.9	39.1
1930	41,024	40,409
1927	39,013	35,352
Increase	2,011	5,057
Per cent Increase	5.2	14.3

It will be observed that the period in 1927 comes nearer the 1930 figures than do either 1928 or 1929. The low production and shipment totals for the 1928 period can be accounted for in part by the fact that straw gas oil from the Louisiana district was given a trial in the distillate consuming areas that year, the oil being bought by many distributors at a gas oil price and sold as a 36 gravity distillate.

In Table 1 is shown cumulative production and shipments at intervals of four weeks for 1927, 1928, 1929 and to date in 1930. It will be observed that with only an exception or two both production and shipments this year have been considerably ahead of the cumulative totals for the other years.

A comparison of percentage changes in production and shipments, based on figures in Table 1 is shown in Table 2. It will be seen that production

Table 1

Cumulative Production and Shipments of Distillate in Kansas and Oklahoma, Tabulated for Each Fourth Week, from 1927 to Date. Figures in Thousands of Gallons

(Figures based on refinery operations reports from Kansas and Oklahoma refiners as reported to National Petroleum News)

	1927		1928		1929		1930	
	Prod.	Ship.	Prod.	Ship.	Prod.	Ship.	Prod.	Ship.
1st Week	1,669	1,860	782	2,207	829	902	1,535	1,912
4th Week	6,292	8,487	3,820	7,135	4,309	5,472	7,322	8,518
8th Week	11,521	14,349	8,017	11,729	9,506	12,080	13,065	14,824
12th Week	17,380	18,981	11,562	15,904	14,221	15,859	17,642	20,062
16th Week	21,142	23,040	14,093	18,593	17,804	18,239	21,601	24,662
20th Week	23,460	25,575	16,341	20,989	20,661	20,813	25,064	27,179
24th Week	25,677	27,818	18,959	22,901	24,144	23,408	28,545	29,945
28th Week	29,138	30,177	21,435	25,049	27,588	24,412	32,125	33,300
32nd Week	33,182	32,358	23,937	27,097	31,061	28,752	35,791	36,604
36th Week	39,013	35,352	26,168	29,051	34,716	32,607	41,024	40,409
40th Week	44,211	39,914	29,886	32,572	41,114	38,923	.....	.....
44th Week	49,083	43,878	34,294	36,063	47,414	44,480	.....	.....
48th Week	52,752	48,965	37,604	39,960	53,611	50,952	.....	.....
52nd Week	56,033	55,374	41,324	44,878	62,116	59,105	.....	.....

thus far in 1930 has ranged from 15.2 to 70.1 per cent greater than for 1929; from 49.5 to 96.3 per cent greater than for 1928, and from a decrease of 8 per cent to an increase of 16.4 per cent over 1927.

Shipments for the period in 1930 have been from 22.7 to 112 per cent greater than in 1929; from 39.1 per cent greater to 19.4 per cent less than in 1928, and from 0.4 to 14.3 per cent greater than for 1927.

This substantial increase in shipments for 1930 is rather surprising in view of the apparent lack of interest shown in distillates this year. Refiners made their contracts as usual, but there appeared to be less insistance that maximum and minimum price clauses be inserted. Many of the refiners merely made their contracts based on the market date of shipment as shown in one or more price publishing mediums. A few refiners had minimums of 2.875 to 3.125 cents and maximums of 3.875 to 4 cents. One or two others merely had the minimum prices of 2.875 to 3 cents with no maximums provided. The failure to provide stops in the contracts were attributed by some sales managers to the sluggishness of kerosines and the burdensome stocks now on hand. Distillates have had little opportunity to show what could be done along price lines. Kerosine prices have camped almost on top of distillates, and there is little doubt but that the activity of distillates alone kept the prices for that commodity at the levels experienced this year.

The accompanying chart illustrates the effect kerosine prices have had on those of distillates this year. It will be observed that early in 1927 both distillate and kerosine prices tumbled. Distillate prices leveled themselves along in March of that year and were influenced only slightly by seasonal demand. Kerosine prices meanwhile took an upturn late in the year, with the result that the average price for kerosine in 1927 was slightly more than 1 cent above the average price for distillate.

The graph shows a different picture for 1928. The kerosine price trend was definitely upward while distillates continued to experience only seasonal fluctuations. The average price for kerosine in 1928 was approximately 2 cents above the average price for distillate.

In the early part of 1929 both kerosine and distillate prices experienced an upward trend, but kerosine prices began slipping in May. Distillate prices slumped in May and June, as would be expected, but rallied as the seasonal demand increased. Kerosine failed to rally, however, and by December there was only 0.25 cent difference in the average prices. The average price of kerosine for 1929, however, was still almost 2 cents above the average price for distillate.

The spread in prices widened slightly early in 1930 as kerosine managed to hold its own while distillate prices, due to the closeness of kerosine, started a downward trend.

About the time distillates leveled out for the summer months, however, kerosine tumbled steadily, until the average price for August was approximately 0.40 cent above that for distillate.

The prospects for the remainder of the year are not encouraging from a price standpoint, although demand in all probability will hold up well.

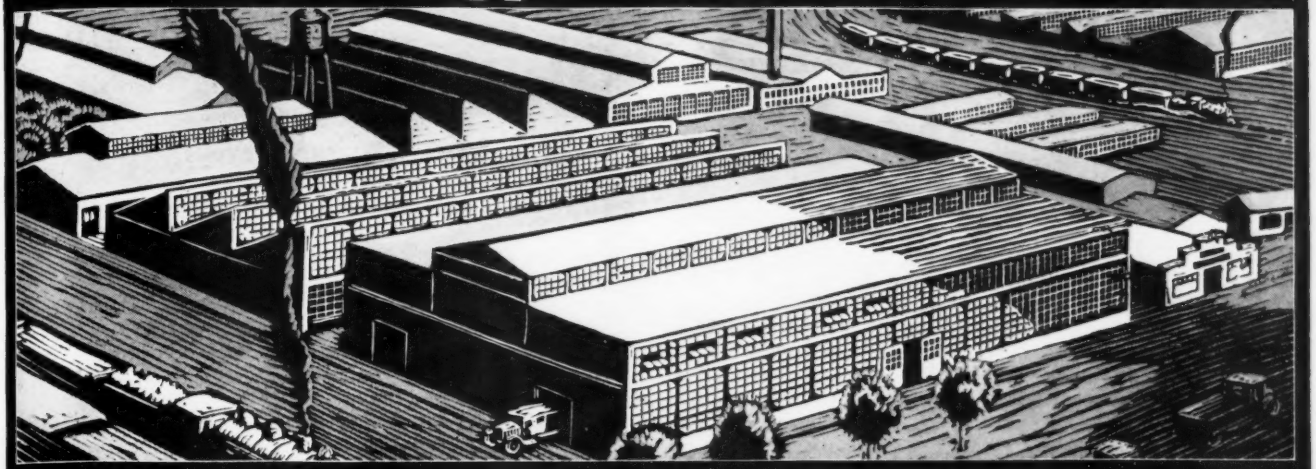
Reports to refinery sales managers indicate jobbers in many distillate consuming areas have urged consumers to fill their storage tanks during the sum-

Table 2

Percentage Changes in Cumulative Production and Shipments of Distillates from Kansas and Oklahoma Refineries for First 36 Weeks of 1930, as Compared with Those for the Same Periods in 1927, 1928 and 1929, Percentages Being Computed for Each Fourth Week

	1930 over 1927		1930 over 1928		1930 over 1929	
	Prod.	Ship.	Prod.	Ship.	Prod.	Ship.
1st Week	— 8.0	+ 2.8	+96.3	—19.4	+70.1	+112.0
4th Week	+16.4	+ 0.4	+91.6	+19.4	+69.9	+55.7
8th Week	+13.4	+ 3.3	+63.0	+26.4	+37.4	+22.7
12th Week	+ 1.5	+ 5.7	+52.5	+26.1	+24.1	+26.5
16th Week	+ 2.2	+ 7.0	+53.3	+33.3	+21.3	+35.2
20th Week	+ 6.8	+ 6.3	+53.4	+29.5	+21.3	+30.6
24th Week	+11.2	+ 7.6	+50.6	+30.8	+18.2	+27.9
28th Week	+10.3	+10.3	+49.9	+32.9	+16.4	+31.0
32nd Week	+ 7.9	+13.1	+49.5	+35.1	+15.2	+27.3
36th Week	+ 5.2	+14.3	+56.8	+39.1	+18.2	+23.9

In all Types and Sizes



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TROUBLE-PROOF

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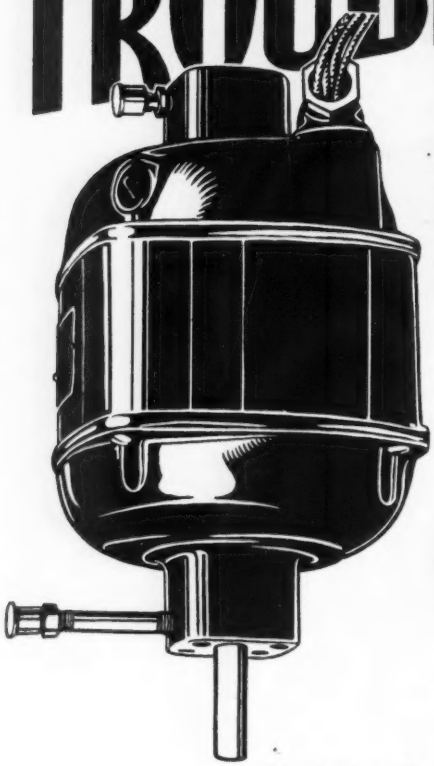

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Leland fractional horsepower Motors

mer, in some instances delaying collection for the oil for 60 or 90 days. In that way the jobbers made use of their customers' tanks for storage, permitting them in turn to fill their own bulk storage.

Low cold test, high gravity fuel oils and the low cold test gas oils have cut into the distillate business to some extent. Several refiners anticipate even a larger demand for the zero gas oils this winter, and accordingly have stored their production during the summer months.

At the present time, however, good grades of distillate, the low cold test gas oils and the fuel oils suitable for burner use are scarce in both Oklahoma and Kansas for prompt shipment. How long that condition will last depends to a large degree on the weather during the winter months.

Even in the prospective picture of an active demand for distillates hovers the cloud caused by kerosine stocks. Refiners in all probability would take advantage of any substantial demand for distillates to work off some of their excess kerosine stocks especially should the spread between the prices for the two oils remain as close as they have been the past 30 to 60 days.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

46966.—**Automobile oils and leather belting oils,** Vienna, Austria, agency.

46968.—**Lubricating and batching oils, gasoline, kerosene and greases,** Dundee, Scotland, agency.

47261.—**Asphalt,** Barcelona, Spain, agency.

47274.—**Scale paraffin,** Buenos Aires, Argentine, agency.

47295. — **Engine Grease,** Guayama, Porto Rico, agency.

47298.—**Refined paraffin,** Hamburg, Germany, agency.

General view of the new station in Cleveland of the Texas Distributing Co. The barbecue at the left is leased. In the center are the five lubrication lifts serviced by fourteen pressure and ten hand guns. To the right is the station office, with the air standards on the side drive

Fourteen Pressure, Ten Hand Guns Serve Five Lubrication Lifts

E. L. Barringer
N. P. N. STAFF WRITER

CLEVELAND

FIVE non-rotating lifts, served by nine high pressure grease guns, five oil drains, and five high pressure transmission grease guns—such is the equipment for automotive lubrication service at a new station in Cleveland of the Texas Distributing Co., local distributor for The Texas Co.

Thoroughness and speed in operation of the lubrication department are obtained through complete equipment, arranged to minimize the movement of the guns. On chassis lubrication, for instance, two guns theoretically may be used on a lift, but actually four guns may be used if additional speed is desired.

At the head of each lift is a high pressure gun for chassis lubrication on the front end of the auto. The guns swing from rotating heads on the grease line attached to the ceiling. On each of the four pillars, between the entrance drives, is a high pressure gun for chassis lubrication on the rear end of the car.

The drain pans swing around so they may be used for the transmission, differential, and crankcase. These drains are on standards, at the cross members of the lifts. Three standards serve the five lifts; two appear in the accompanying illustration; the third is against the wall to the left, servicing the lift seen partly in the immediate foreground.

Each lift has a drain pan, and a grease gun for transmission and differential, with a meter. Each standard also has one spring spray, and one air line for inflating the tires. The air line for operating the lifts is near the floor at the head of the lifts.

Grease storage is in a room at the rear of the station's office. Two tanks hold the grease, each of 500 pounds capacity; one for chassis and the other for transmission and differential lubricant. These tanks are filled from drums with a rotary pump.

For special lubrication 10 guns are used. These are on a display board at the head of the center lifts for convenience in handling as well as for a sales effect on the customer.

The guns for specialized lubrication are for draining and refilling wet clutches; glycerine for hydraulic shock absorbers; oil for hydraulic shock absorbers; oil for fan, hub, and oil cups; spicer universal joints; oil for tight universal joints; steering gear lubricant; special transmission and differential lubricants; water pump lubricant and wheel bearing lubricant.

Three sets of lights illuminate the lubrication department. In the ceiling are indirect lights. In each of the pillars, by the entrance, is a light in a reflector. At the head of each lift, about two feet above the floor level, is a lantern type light, with an electrical connection in the bottom for attaching the small vacuum cleaner used in cleaning the interior of the autos.

The tools are kept on racks in the corners at the head of the lifts. The tool rack is illustrated in an accompanying

Interior of the lubrication department. Note the overhead high pressure guns, and those on the pillars at the extreme right. At the rear, right, is the oil display. In addition to the two double standards for oil pans, and transmission grease guns, there is a single standard against the left wall for servicing the lift partly illustrated in the foreground

picture in the right hand corner of the room. A similar rack is in the left hand corner. Motor oil is displayed in one-gallon glass containers in an opening in the wall between the waiting room and the lubrication department. The display was constructed by the Texas Distributing Co.

The motor oil display seen from the lubrication department. In the rear is the waiting room. Oil is brought to the display by air from underground storage tanks. The levers on the right are for filling the metal measures. In the center, back of the outlet levers, is the valve trip for filling the containers, and operating the register

Sales value as well as utility was considered in locating the display. The glass containers make the oil visible to the customer, against a background of light, whether he is in the waiting room, or in the lubrication department. Above the display, on the lubrication room side, is a shelf for package goods.

Oil is stored at the side of the station in four underground tanks, each with a capacity of 500 gallons. Compressed air moves the oil to the five outlets in the display.

The glass containers measure the oil as it passes through for the company's records, but they are not measures for selling oil to the customer. The valve at the bottom of each container drains the oil into metal measures for filling the crankcase. To fill the container the valve trip, at the bottom of the container, is shoved up. This closes the outlet valve at the bottom, and opens an inlet valve at the top of the contain-

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HOW TO PREVENT EVAPORATION and FIRE LOSSES

Every oil man can learn much of value about evaporation and fire prevention from the articles on this subject written by real engineers, for

The Fourth Annual Engineering Volume
National Petroleum News

Out November 12

er. When the container is full the valve trip is pulled down, closing the inlet valve and registering the quantity of oil in the container.

Gasoline is stored underground, alongside the oil tanks. There are four tanks for gasoline storage of 5000 gallons capacity each.

The gasoline dispensing units are on a pump island, directly in front of the station's office. The meters are in three groups, each having a meter for the Texaco and the Texaco Ethyl gasolines.

The air standards have been removed from their time-honored place, and are at the side of the building at this station. A customer may obtain air service from the two standards without hindering traffic on the service drives.

Lighting has played its part in the design of the station as a means of attracting attention at night. Under the eaves of the building are 108 lamps, hidden from view. At the sidewalk, in the center of the lot, is a floodlight standard with two 2000-watt lamps. To add to the effect lights have been placed on the two small domes. The arched windows on the building at the left of the station produce a shadowed effect at night from the lights under the eaves and the floodlights. The exterior of the building is a yellow tinted stucco.

The station building is an L-shaped structure. On the short side of the L, fronting on the main street, is a barbecue stand. This department is leased; all others are operated by the Texas Distributing Co.

On the long side of the L are the lubrication lifts, and the office. The drive is open between the barbecue and the lift department for patrons of the restaurant to use in inclement weather. At the rear is a parking space for about 30 cars, used jointly by the barbecue and oil station.

The station's office is equipped with red upholstered wicker chairs for the customers, and the manager's desk. Back of the office is the grease storage room, with the two 5-horsepower water cooled air compressors.

The men's toilet is inside off

the office. The women's toilet is at the side of the grease room with the entrance from the outside. The drives in front of the station are concreted and as near the street level as possible.

The station described and illustrated is on Carnegie avenue at E. 90th st. Carnegie ave. is the main traffic route to Cleveland's east side, and has been a favorite street in the past year for the large, new type of service stations with enclosed lubrication service. Consequently the motorist has plenty of places available for buying his gasoline, oil and lubrication service.

These factors were considered in the station design. To attract the motorist's attention the station used floodlights with a large Neon sign attached to the standard, vertical to the flow of traffic. Concrete drives were installed to speed the customer through the station. For the lubrication department, the walls are of tile and the floors painted, to aid in keeping the room clean.

Other stations of this type are being constructed in greater Cleveland by the Texas Distributing Co. The designs are varied to fit the size and type of the location.

CHICAGO, Oct. 6.—"Wage Incentives" and "Mutual and Group Insurance" were leading subjects discussed this week at the Twelfth Annual Industrial Relations Conference, in Chicago, of the Standard Oil Co. of Indiana.

Coincident with this meeting, held at the Congress Hotel, sales executives of the Vacuum Oil Co. met at the same place to confer on merchandising problems.

The Standard oil session was attended by more than 100 representatives of the employes and management of the company. The committees were from refineries at Whiting, Indiana; Wood River, Illinois; Sugar Creek, Missouri; Casper, Greybull, and Larmie, Wyoming, and from the general offices in Chicago.

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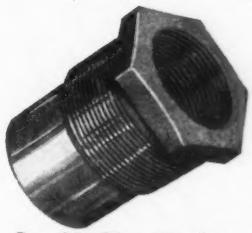
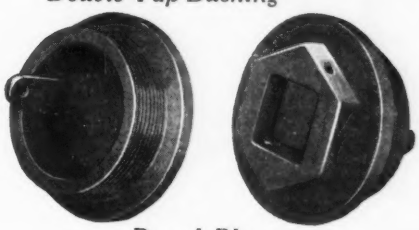


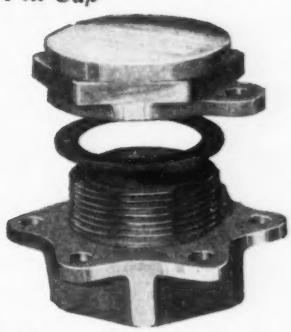
Double Tap Bushing

Fill Cap



Barrel Plugs

Fill Cap



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DETROIT, MICH. _____5423 12th St.
NEW YORK, N. Y. _____152 Chambers St.
PHILADELPHIA, PA. ___313-319 New St.
PITTSBURGH, PA. _____300 Penn Ave.
ST. LOUIS, MO. _____221-223 No. 3rd St.
TOLEDO, O. _____415 Michigan St.

Continental Rubber Works
Erie, Pa., U.S.A.

NEW EQUIPMENT

Economy Engineering Co., 2653 W. Van Buren St., Chicago, has published bulletin No. 104 illustrating the use of its steel barrel racks by a number of oil companies.

The bulletin claims that these racks provide the most economical method for storing barrels and drums, illustrating how various sizes and items are carried, properly lotted, permitting easy inspection inventory, stock rotation, dry storage, re-cooperage and easy handling. It shows how twice the number of barrels can be handled on the racks compared with stacking them on the floor.

The racks are sectional, all-steel, of riveted and welded types. Both hand and power-operated lifters for serving the racks are also furnished.

* * *

Perfection Stove Co., Cleveland, has brought out a new furnace oil burning stove known as the Superfex Circulating Heater. The heater is set up like an ordinary stove and may be fueled from a 5-gallon container at the rear or from an outside source. It will heat an ordinary 5-room house, having a normal capacity of 4000 cubic feet.

* * *

The Carbondale Machine Co., Carbondale, Pa., has purchased the business, machinery and manufacturing facilities of the refrigerating department of the Excelsior Motor Manufacturing & Supply Co. of Chicago. With the addition of the new facilities Carbondale will have a complete line of refrigeration units from ¼-ton to 700-ton capacities in single units. Excelsior units are of the duplex vertical type with V-belt drive.

* * *

The Republic Steel Corp., Youngstown, O., has opened a district sales office in Tulsa, Okla., with C. S. Powers, formerly of the Detroit office, as district sales manager, according to Norris J. Clarke, vice president in charge of sales. The Tulsa district includes Oklahoma and a part of Kansas.

Crude Production by Fields

By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A. P. I.

PRODUCTION SUMMARY

	Oct. 11	Oct. 4
Production east of Rockies	1,776,600	1,800,750
Decrease		24,150
Total production in U. S.	2,366,800	2,386,950
Decrease		20,150
Crude oil imports	188,000	73,430
Increase		114,570
Total new crude supply	2,554,800	2,460,380
Increase		94,420

OKLAHOMA

	Oct. 11	Oct. 4
Allen Dome	14,850	14,000
Asher	1,150	1,150
Asher, West	7,500	7,050
Blackwell	3,000	3,000
Bowlegs	14,650	14,900
Braman	3,200	3,200
Bristow-Slick	15,000	15,100
Burbank	15,400	15,400
Carr City	7,550	7,400
Cromwell	7,300	7,350
Cushing	13,450	13,500
Davenport	1,150	1,150
Duncan Dist.	8,850	8,850
Earlsboro	20,050	17,400
Earlsboro, East	18,150	17,700
Earlsboro, So.	12,250	9,150
Fox	1,150	1,200
Garber	4,550	4,550
Graham	3,250	3,300
Healdton	12,000	12,000
Hewitt	6,900	6,950
Hubbard	1,400	1,400
Konawa	18,550	18,150
Little River	24,200	23,600
Little River, East	13,600	12,500
Logan Co.	4,300	4,400
Maud	3,200	3,000
Mission	5,300	5,550
Oklahoma City	92,250	110,500
Okmulgee, North	10,450	10,450
Okmulgee, South	6,900	6,900
Osage (outside Burbank)	24,950	24,950
Papoose	2,650	2,650
Pearson	700	700
Sasakwa	6,500	5,700
St. Louis	24,400	24,850
Scholem-Alechem	13,700	13,650
Searight	7,350	7,300
Seminole	14,300	14,300
Seminole, East	2,200	2,200
Thomas	650	650
Tonkawa	6,200	6,250
Wewoka	3,600	3,800
Yale-Jennings	7,150	7,150
Others	63,250	63,550
Total, Okla.	549,100	558,450
Decrease		9,350

KANSAS

Augusta-Fox Bush	2,850	2,850
Churchill	3,600	3,550
El Dorado-Towanda	13,800	13,850
Florence-Covert	750	800
Greenwood Co.	18,200	18,400
Oxford	2,550	2,600
Peabody-Elbing	2,550	2,550
Rainbow Bend	1,050	1,100
Russell	3,000	3,000
Sedgwick Co.	22,750	23,000
Voshell	10,350	9,250
Others	34,500	35,000
Total, Kans.	115,950	115,950

NORTH LOUISIANA

Caddo, light	8,700	8,950
Caddo, heavy	2,750	2,750
Cotton Valley	1,900	1,850
De Soto and Red River	3,050	3,000
Haynesville	5,050	4,900
Holly	950	1,000
Homer	3,450	3,450
Sarepta Carterville	2,250	2,550
Urania	5,250	5,250
Zwolle	5,250	4,500
Others	1,700	1,700
Total, No. La.	40,300	39,900
Increase		400

ARKANSAS

Champagnolle	3,600	3,750
El Dorado	4,100	4,050
Lisbon	900	900
Nevada	1,050	1,000
Smackover, light	4,950	5,000
Smackover, heavy	36,400	36,400
Stephens	900	900
Others	900	900
Others	500	1,150
Total, Ark.	52,400	53,150
Decrease		750

ROCKY MOUNTAIN

Wyoming

Big Muddy	1,950	1,950
Elk Basin	850	800
Grass Creek	2,100	2,050
Labarge	1,500	2,100
Lance Creek	100	150
Lost Soldier	5,800	5,750
Oregon Basin	2,500	2,500
Rock River	2,100	2,150
Salt Creek	25,850	29,100
Others	4,950	5,450
Total, Wyoming	47,700	52,000
Decrease		4,300

Montana

Cat Creek	1,100	1,100
Pondera	1,700	1,650
Sunburst	6,100	6,100
Others	100	100
Total, Montana	9,000	8,950
Increase		50

Colorado

Florence	450	600
Fort Collins	1,150	1,150
Moffat (Craig)	1,050	1,000
Others	1,500	1,550
Total Colorado	4,150	4,200
Decrease		150

New Mexico

Artesia	700	700
Bal. Eddy Co.	100	200
Bal. Lea Co.	7,600	7,600
Hobbs High.	29,600	38,150
Hogback	400	400
Rattlesnake	1,300	1,250
Table Mesa	100	100
Total, New Mexico	39,800	47,800
Decrease		8,000
Total, Rocky Mt.	100,650	113,050
Decrease		12,400

TEXAS (OUTSIDE GULF COAST)

Panhandle District

Carson Co.	7,150	6,950
Gray Co.	55,250	54,750
Wheeler Co.	550	700
Hutchinson Co.	16,700	16,100
Others	550	300
Total, Panhandle, Tex.	80,200	78,800
Increase		1,400

North Texas

Archer Co.	13,350	13,800
Burkburnett	7,800	7,800
Electra	10,300	10,750
Iowa Park and K. M. A.	4,550	4,650
Montague-Cooke	9,200	9,250
Wilbarger	15,500	16,200
Others	1,900	2,000
Total, N. Tex.	62,600	64,450
Decrease		1,850

West Central Texas

Brown Co.	5,450	5,400
Callahan Co.	3,000	3,000
Coleman Co.	2,550	2,700
Eastland-Desdemona	5,300	5,250
Jack Co.	2,050	2,100
Palo Pinto Co.	500	400
Shackleford Co.	5,650	6,800
Stephens Co.	5,350	5,250
Throckmorton Co.	700	700
Young Co.	15,100	15,500
Others	2,000	1,350
Total, West Cent. Tex.	47,650	48,450
Decrease		800

West Texas

Crane and Upton Co.'s	34,200	34,750
Crockett Co.	2,100	2,100
Ector Co.	8,050	7,200
Howard Co.	22,450	23,300
Jones Co.	1,350	1,300
Mitchell and Scurry Co.'s	2,100	2,400
Reagan Co.	24,100	22,200
Winkler Co.	61,900	61,200
Yates	103,400	104,450
Balance Pecos Co.	3,300	3,200
Others	7,400	7,700
Total, West Texas	270,350	269,800
Increase		550

East Central Texas

Boggy Creek	2,500	2,600
Corsicana-Powell	5,450	5,500
Currie	350	400
Mexia	4,150	4,200
Nigger Creek	200	200
Richland	150	150
Van Zandt	27,150	29,000
Wortham	600	600
Total, East Cent. Tex.	40,550	42,650
Decrease		2,100

Southwest Texas

Chapman Abbott	12,250	10,500
Dale	250	250
Darst Creek	45,000	44,700
Laredo Dist.	13,550	12,550
Luling	9,900	10,000
Lytton Springs	900	850
Salt Flat	17,000	17,000
Somerset	1,500	1,550
Others	700	600
Total, Southwest Tex.	101,050	98,000
Increase		3,050
Total, Texas (outside Gulf Coast)	602,400	602,150
Increase		250

GULF COAST

Coastal Texas

Barbers Hill	19,800	17,900
Batson	1,150	1,150
Big Creek	3,950	3,450
Blue Ridge	1,800	1,850
Boling	1,000	1,000
Damon Mound	700	700
Esperson	3,200	3,250
Fannett	700	700
Goose Creek	4,500	4,700
Hankamar	1,600	1,400
Hull	7,400	7,700
Humble	15,850	14,400
North Dayton	1,100	1,250
Orchard	1,900	2,000
Orange Co.	2,150	2,200
Pettus	8,400	8,400
Pierce Junc.	10,450	10,500
Port Neches	1,450	1,500
Raccoon Bend	10,350	12,000
Refugio Co.	26,750	27,100
Saratoga	1,200	1,100
Somerville	2,900	2,550
Sour Lake	2,200	2,200
S. Liberty	3,200	3,300
Spindletop	16,250	15,800
Sugarland	11,900	11,700
W. Columbia	4,100	4,000
Others	2,650	2,550
Total, Coastal Texas	168,600	166,350
Increase		2,250

Coastal Louisiana

E. Hackberry	2,500	2,900
Old Hackberry	1,000	950
Edgerly	400	400
Evangeline	2,000	2,100
Lake Barre	1,000	1,000
Lockport	2,650	2,750
Port Barre	3,300	3,600
Sulphur Dome	2,300	2,500
Vinton	8,250	9,950
White Castle	1,300	1,100
Others	2,650	2,650
Total, Coastal Louisiana	27,150	29,900
Decrease		2,750
Total, Gulf Coast	195,750	196,250
Decrease		500

CALIFORNIA

Dominguez	10,000	10,000
Elwood-Goleta	35,000	32,000
Huntington Beach	28,000	27,600
Inglewood	15,500	15,200
Kettleman Hills	24,800	24,200
Long Beach	100,800	100,500
Midway Sunset	60,000	61,500
Playa del Rey	20,000	20,000
Santa Fe Springs	95,200	94,700
Seal Beach	18,700	19,000
Ventura Ave.	46,400	46,500
Others	135,000	135,000
Total, Calif.	590,200	586,200
Increase		4,000

EASTERN

(Not including Michigan)	112,500	114,000
Decrease		1,500

MICHIGAN

Mt. Pleasant	4,900	5,200
Muskegon	2,400	2,400
Saginaw	250	250
Total, Mich.	7,550	7,850
Decrease		300

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended Oct. 10 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Oct. 10
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)	94,000	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	60,175 + 4.9	97,501 + 1.9	63,419 + 3.4	32,266 — 6.9	36,577 — 8.6	289,938 + 0.3
Da. Av. Other Oils	5,172 — 50.8	2,993 — 57.4	3,690 — 1.3	3,953 + 26.4	13,284 — 29.2	29,092 — 32.6
GASOLINE—Gallons						
Stocks, Oct. 3	11,538,000	38,289,000	23,646,000	9,520,000	8,103,000	91,096,000
Prod. 10-3 to 10-10	10,167,000 — 2.7	16,840,000 — 4.7	9,886,000 + 10.6	4,385,000 + 23.5	4,376,000 — 27.1	45,654,000 — 2.0
Ship. 10-3 to 10-10	9,469,000 + 7.7	16,575,000 — 8.5	8,924,000 — 5.6	4,404,000 + 38.8	4,754,000 — 36.5	44,126,000 — 6.1
Stocks, Oct. 10	12,236,000 + 6.0	38,554,000 + 0.7	24,608,000 + 4.1	9,501,000 — 0.2	7,725,000 — 4.7	92,624,000 + 1.7
Ratio Sales to Prod.	93.1%	98.4%	90.3%	100.4%	108.6%	96.7%
KEROSINE—Gallons						
Stocks, Oct. 3	8,228,000	12,050,000	2,456,000	58,000	583,000	23,375,000
Prod. 10-3 to 10-10	1,751,000 — 6.4	2,306,000 + 10.1	1,345,000 + 7.9	26,000	982,000 + 68.4	6,410,000 + 10.6
Ship. 10-3 to 10-10	1,406,000 + 2.3	2,035,000 + 11.7	1,177,000 — 6.0	50,000 — 15.3	1,030,000 + 50.1	5,698,000 + 9.7
Stocks, Oct. 10	8,573,000 + 4.2	12,321,000 + 2.2	2,624,000 + 6.8	34,000 — 41.4	535,000 — 8.2	24,087,000 + 3.0
Ratio Sales to Prod.	80.3%	88.2%	87.5%	192.3%	104.8%	88.9%
STOVE DISTILLATE—Gallons						
Stocks, Oct. 3	5,096,000	4,294,000	591,000	151,000	714,000	10,846,000
Prod. 10-3 to 10-10	350,000 + 9.0	855,000 + 20.4	269,000 + 22.3	22,000 — 61.4	35,000 +775.0	1,531,000 + 16.7
Ship. 10-3 to 10-10	322,000 — 0.9	816,000 + 28.3	271,000 + 24.9	34,000 — 33.3	35,000 + 29.6	1,478,000 + 17.7
Stocks, Oct. 10	5,124,000 + 0.5	4,333,000 + 0.9	589,000 — 0.3	139,000 — 8.0	*	10,185,000† — 6.1
Ratio Sales to Prod.	92.0%	95.4%	100.7%	154.5%	100.0%	96.4%
GAS OIL—Gallons						
Stocks, Oct. 3	4,405,000	44,029,000	2,623,000	5,064,000	6,603,000	62,724,000
Prod. 10-3 to 10-10	648,000 + 1.7	845,000 — 53.4	588,000 — 22.2	762,000 +198.8	1,293,000 —40.3	4,136,000 —26.5
Ship. 10-3 to 10-10	894,000 + 13.7	2,118,000 — 7.0	554,000 — 58.7	535,000 — 25.1	977,000 —54.3	5,078,000 —30.0
Stocks, Oct. 10	4,159,000 — 5.6	42,756,000 — 2.9	2,657,000 + 1.3	5,291,000 + 4.5	7,633,000** +13.5	62,496,000** —0.36
Ratio Sales to Prod.	138.0%	250.6%	94.2%	70.2%	75.6%	122.8%
FUEL OIL—Gallons						
Stocks, Oct. 3	28,946,000	52,493,000	70,320,000	22,900,000	17,067,000	191,726,000
Prod. 10-3 to 10-10	4,836,000 + 17.9	4,515,000 — 11.6	6,992,000 — 7.4	4,082,000 — 8.2	4,219,000 — 3.1	24,644,000 — 3.6
Ship. 10-3 to 10-10	4,977,000 — 10.0	5,573,000 — 2.8	7,495,000 + 9.9	5,082,000 + 36.6	4,279,000 — 0.1	27,406,000 + 5.1
Stocks, Oct. 10	28,805,000 — 0.5	51,435,000 — 2.0	69,817,000 — 0.7	21,900,000 — 4.4	17,007,000 — 0.4	188,964,000 — 1.4
Ratio Sales to Prod.	102.9%	123.4%	107.1%	124.5%	101.4%	111.2%

Gasoline Produced by Various Methods, Week Ended October 10

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,135,000	60.3	10,809,000	64.1	6,258,000	63.3	3,926,000	89.5	1,313,000	30.0	28,441,000	62.3
Cracked	3,598,000	35.4	4,762,000	28.3	2,105,000	21.3	214,000	4.9	2,265,000	51.8	12,944,000	28.4
Natural	434,000	4.3	1,269,000	7.6	1,523,000	15.4	245,000	5.6	798,000	18.2	4,269,000	9.3
Total	10,167,000		16,840,000		9,886,000		4,385,000		4,376,000		45,654,000	

*Transferred to Gas Oil Stocks.
†Reduced 714,000 gallons due to transfer of stocks to gas oil storage.
**Increased 714,000 gallons due to transfer of stove distillate to gas oil stocks.
+ or — columns are % changed over previous week.

Mid-Continent Gasoline Stocks Increase

Staff Special—by Telegraph
TULSA, Oct. 13

GASOLINE shipments from Mid-Continent refineries reporting weekly to this publication dropped 2,800,000 gallons in the week ended Oct. 10. The lower demand caused the first increase in stocks of the fall season. Inventories rose 1,500,000 gallons.

Crude runs at reporting plants were on a level with the previous week. Charges of partly refined oils to stills dropped, however, and gasoline output was cut 1,000,000 gallons. Louisiana-Arkansas refiners reduced crude runs, while other districts reported slight increases.

A year ago the same Mid-Continent plants were running an average of 72,700 barrels per day of crude more to stills than now. Gasoline output was 4,300,000 gallons per week higher and gasoline shipments 5,000,000 gallons per week higher.

Kerosine stocks increased 700,000

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Oct. 10. Change in stocks figures from Sept. 12.

GASOLINE

	Gallons
Production	191,446,000
Shipments	195,529,000
Net change in stocks	—4,083,000
Ratio sales to production	102.1%

KEROSINE

	Gallons
Production	23,997,000
Shipments	22,614,000
Net change in stocks	+1,383,000
Ratio sales to production	94.2%

STOVE DISTILLATE

	Gallons
Production	5,806,000
Shipments	6,550,000
Net change in stocks	744,000
Ratio sales to production	112.8%

GAS OIL

	Gallons
Production	22,087,000
Shipments	25,399,000
Net change in stocks	—3,312,000
Ratio sales to production	114.9%

FUEL OIL

	Gallons
Production	104,920,000
Shipments	107,759,000
Net change in stocks	—2,839,000
Ratio sales to production	102.7%

gallons in the week just closed. Shipments increased 500,000 gallons, but production increased 700,000 gallons. Furnace oil stocks were cut 53,000 gallons when shipments jumped 222,000 gallons with the approach of the consuming season. Gas oil stocks were cut 228,000 gallons and fuel oil stocks 2,700,000 gallons.

Credit Men to Discuss Retail Conditions

TULSA, Oct. 13—Retail credit conditions in the oil industry will be considered by the annual conference of the Petroleum Refiners Division, National Association of Credit Men, at St. Louis Oct. 20, 21 and 22. Meetings will be held at the Coronado hotel. Formerly the conference has dealt largely with tank car credits.

W. Z. Brown of the Producers & Refiners Corp., Independence, Kan., chairman of the board of governors, will preside at the meeting. In announcing the program Mr. Brown has pointed out that credits in our industry are growing more complex from year to year.

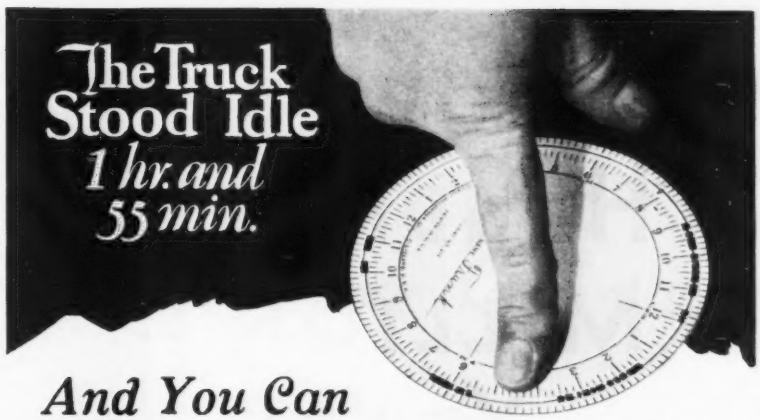
Attention will be given to service to jobber customers in helping establish records which will reveal costs of doing business.

Among other matters, consideration will be given to "How the Credit Department Can Become a Profitable Sales Adjunct of the Business"; "Credit Problems Growing Out of Service Station Sales, Cost of Handling Charge Accounts and Determining their Profitableness"; "Credit as It Relates to Furnace and Fuel Oil" which is rapidly becoming an important factor to the petroleum industry; "The Effect of Credit and Terms Competition Upon the Buyer, Seller and Production and Distribution Within the Industry." Special attention will be given to the question of the best methods of developing impartial and dependable credit information on all classes of customers.

Conferences of previous years have covered two days. Because of the number of new features to be included this year, an extra day will be required. The regular annual banquet, which is a feature of the meeting, will be held on Tuesday evening. Special entertainment, and a talk on "Present Business Conditions and the Outlook for the Coming Year," by Arthur F. Barnes, Vice President, Mercantile-Commerce Bank & Trust Co., St. Louis, will be the features of the evening meeting.

New Standard Tanker Ready

NEW YORK, Sept. 27.—Standard Shipping Co., subsidiary of Standard Oil Co. (N. J.) within 10 days will place in service the first of eight tankships it is building this year. The first vessel in service is the G. Harrison Smith. She will ply between Bayonne and Colombia.



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Tire Display at the Filling Station

With thousands of oil companies putting in a line of tires at their stations, the article on Tire merchandising and display in the Fourth Annual Engineering Volume (out November 12) will fill a real need.

Better order extra copies of this important Volume now—50c each.

It's the Fourth Annual Engineering Volume Published November 12, 1930, by National Petroleum News.

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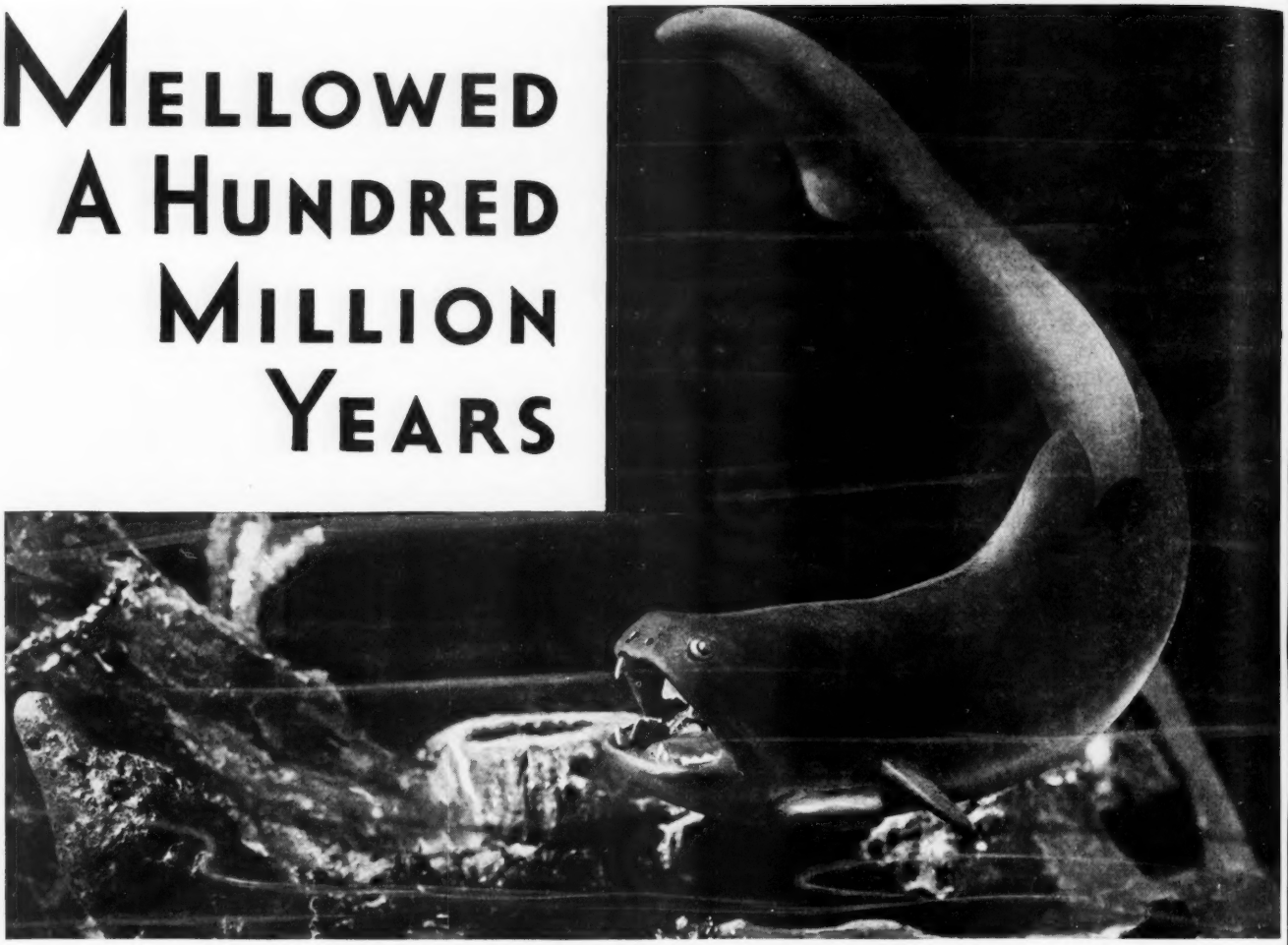

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Refinery - Tank Wagon Markets

Gasoline Prices Lose More Ground; Burning Oils Advance

CLEVELAND, Oct. 14

PRICES of most refined oils continued to drift toward lower levels in practically all markets last week. Burning oils in the Mid-Continent and in the Chicago district stood out as notable exceptions to this trend, and the Pennsylvania gasoline market was pretty much in the limelight due to a reversal of the trend of prices there.

Retail gasoline markets quieted down considerably. Standard companies continued to meet cut prices in a few isolated districts but for the most part there was little change in retail markets generally.

A large volume of new buying in the Pennsylvania market cleared it of virtually all distress gasoline. The U. S. Motor price there moved up 0.125 cent on the low end of the range.

Reports on gasoline from other territories were not as favorable as from Pennsylvania. Prices in the Mid-Continent reached new lows for the movement with U. S. Motor selling at 5.25 to 5.75 cents from various districts on a Group 3 basis. The Chicago market for U. S. Motor, reflecting prices from all sections of the middle west, was down 0.25 to 0.375 cent. There were no changes in posted prices in the various eastern seaboard markets but price shading gained considerable headway.

Purchase of crude oil at substantial concessions under posted prices by several companies served further to unsettle north Texas gasoline markets. An independent exporter was reported to have placed orders for 3,000,000 gallons of 375 end point gasoline at 5.875 cents a gallon in the north Texas market.

Burning oil markets in the middle west were relatively active. Prices in the Mid-Continent and at Chicago advanced 0.125 to 0.25 cent due largely to scarcity of the better grades of home heating oils.

Lubricating oil markets were unsettled. Neutral oils were fairly steady in Pennsylvania and the Mid-Continent but bright stock prices lost 1 to 3 cents a gallon.

Bulk markets for light oils at the Gulf were generally unchanged but the heavy oils were quoted lower. There was no new foreign business in the market. Grade C bunker oil in cargo lots sold at $0.80 delivered New York. On the basis of the current Gulf-North Atlantic tanker rate this figures back approximately $0.65 per barrel f.o.b. the Gulf. Some distress oil sold at $0.60 a barrel.

Wax markets were quiet. There were minor fluctuations in fully refined prices at New York and New Orleans. White crude scale was 0.125 cent lower in Pennsylvania. Mid-Continent scale was unchanged at 2.25 cents a pound.

Gasoline Prices Move Down at Chicago

Staff Special

CHICAGO, Oct. 11

SPOT gasoline demand generally was light in the Chicago market in the week ended Oct. 11. Prices continued to move lower as sellers competed vigorously for what little business was being done. Refiners reported most of their contract jobbers were ordering out their requirements in satisfactory fashion.

Spot buying apparently was practically all on a hand-to-mouth basis as orders generally were for small lots and for prompt shipment. Buyers evidently could see no reason for loading their storage or buying much gasoline for future shipment, due to the general unsettled market conditions and to the efforts of sellers to move their gasoline.

A wide range of prices was being quoted on U. S. Motor gasoline, with a spread of 1.25 cents between the highest and the lowest sales reported. One carlot marketer reported moving a car or two of north Texas Motor at 5.25 cents, Group 3 basis, while an occasional sale at 6.50 cents was reported by Oklahoma refiners who were not much interested in the spot market.

However, the general range of spot sales was between the two extremes noted above. On Oct. 11, sales of North and West Texas gasoline were reported mostly at 5.375 to 5.50 cents, f.o.b. Group 3. Some sales of Oklahoma Motor also were reported at 5.35 cents, but the bulk of sales on gasoline from this district were reported at 5.50 to 5.875 cents.

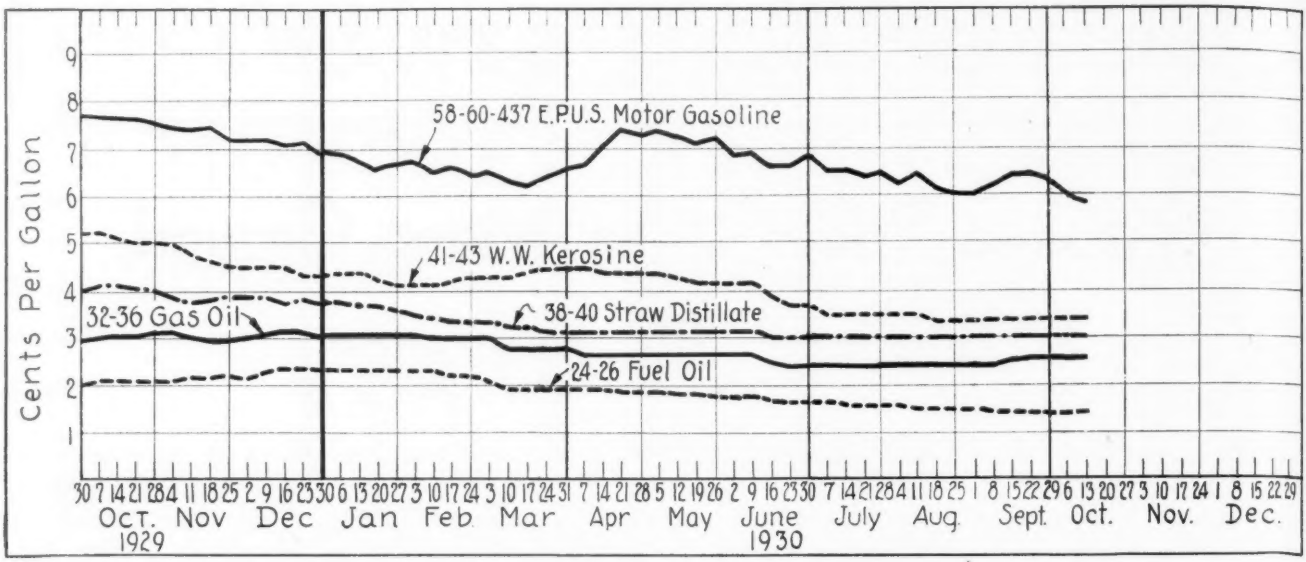
Carlot marketers generally reported they could buy freely in Oklahoma and Texas at 5.25 to 5.375 cents, with some 5.125-cent material available in north Texas. One marketer said he was offered a limited quantity of U. S. Motor at 5 cents, Group 3 basis, by a north Texas refiner, but said this was the only offer this low that he had received.

Chicago marketers reported an improvement in the gasoline situation in Michigan, due, they said, to higher prices being quoted by the Pennsylvania refiners. Whereas last week they could buy Pennsylvania U. S. Motor at 6.375 and 6.50 cents, they reported Oct. 11 that practically none was available at under 6.75 cents, f.o.b. refinery. Sales of U. S. Motor, originating at Illinois and Indiana refineries, were reported at 8 to 8.50 cents delivered in Detroit.

Demand for high gravity gasolines was reported light in most sections, while movement of anti-knock gasoline was fairly active. One marketer said his gasoline business this year was noticeably larger than in 1929, due largely to his movement of anti-knock gasolines.

The kerosine market remained in

Current Prices of Principal Mid-Continent Refined Products



Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

the doldrums with practically no change reported in prices.

While the movement of furnace oils has slackened, due to warmer weather. demand remained fairly active and prices showed no signs of moving downward. Several sellers quoted 38-40 straw distillate and 40-42 kerosine at the same prices, and a number of distributors said they were receiving untreated kerosine on their distillate purchases.

Low cold test gas and fuel oils remained in steady demand and prices were higher in most quarters. These products, especially a straw zero gas oil, were not overly plentiful and most of the trade believed that cold weather would bring an exceedingly active market.

Occasional shower periods are likely over the Standard of Indiana territory next week, with moderate temperatures over most sections.

KINGSTON, N. Y.—The Ulster Distributing Co. has become a distributor in Ulster county for the Richfield Oil Co. The company is composed of George Clearwater, C. Robinson and N. Feldman who were formerly in the oil burner business.

Gen. Andrews to Leave Dutch-Shell Group

NEW YORK, Oct. 11.—Gen. Avery D. Andrews has resigned as American representative of the Royal Dutch-Shell group, effective Dec. 31. He had served the group 11 years and was an officer of many of the groups operating companies.

It was announced Gen. Andrews would spend considerable time after Jan. 1 traveling and in recreation besides looking after his own affairs which his work with the group precluded.

Yearbook Has Oil Statistics

WASHINGTON, Sept. 27.—Seventeen pages in the newly published "Commerce Yearbook 1930" are devoted to statistical and other information on petroleum and its products. It is published by the Bureau of Foreign and Domestic Commerce, Department of Commerce.

In addition to statistics, it includes prices of gasoline and other refined products as far back as 1913; refining industry statistics back to 1899; and brief summaries of the general situation in the industry.

John W. Frey, petroleum section, minerals division of the Bureau prepared the oil industry data.

The book may be obtained from the Superintendent of Documents, Washington, for $1.

Dixie Gasoline Enters Chicago

CLEVELAND—Entrance of Dixie gasoline in the Chicago market is featured in the September issue of The Dixie Drum. E. T. Sadler describes how the Lynch-Clarisey Co., long time fuel oil distributors in Chicago, broke into the market with Dixie gasoline and has obtained 39 outlets since Sept. 1, 1929.

Correction

The following prices, which arrived too late to incorporate into the complete seaboard table on page 114 of this issue, were effective Oct. 13 on the following products, instead of those published:

53-55 U. S. Motor gasoline.. 9.00-12.00
U. S. Motor gasoline blends,
special cuts 10.00-13.00
Gasoline, 400 e.p. blend..11.00-14.00
Gas oil, 30-34, per bbl.....$0.90-$1.00

Prices 10 Years Ago
Oct. 11, 1920

	Oklahoma	Penna.
58-60 U. S. Motor.....	21.75-22.00c	25.00-25.50c
80-84 Natural	20.00-21.00c	.....
Kerosine (42-43 Okla.; 47 w. w. Pa.).....	9.25-9.50c	14.50-15.00c
Fuel Oil (24-26 Okla.; 36-40 Pa.)	$2.50-$2.60	11.00c
Crude (Okla. 35-35.9)	$3.50	$6.10
Chicago tank wagon (no state tax) 27.00c		

Prices A Year Ago
Oct. 14, 1929

	Oklahoma	Penna.
58-60 U. S. Motor.....	7.6721c	8.50-9.00c
Grade A Natural	6.50c	.....
Kerosine (Okla. 41-43; Pa. 47 w. w.)....	5.00-5.25c	7.00-7.50c
Fuel Oil (Okla. 24-26; Pa. 36-40).....	$0.825-$0.90	4.625-5.00c
Crude (Okla. 35-35.9)	$1.40	$3.30
Chicago tank wagon (including 3c tax).....19.00c		

Mid-Continent Refinery Markets

Burning Oils Up 0.125 to 0.25 Cent

Staff Special
TULSA, Oct. 11

HEATING distillates, low cold test gas oils and high gravity, high cold test fuel oils were the only firm spots in the Mid-Continent refinery market during the week of Oct. 6 to 11. Refined gasolines were sluggish, natural gasolines lost some ground and heavy fuel oils were in little demand.

Refiners in all districts reported an improved demand for the low cold test gas oils. In several quarters prices advanced 0.125 to 0.25 cent a gallon. Buyers reported the oil was comparatively scarce for prompt delivery on spot orders.

Many refiners anticipate an excellent demand for the distillates and gas oils this winer and accordingly have been reluctant to sell any at the present price levels. They realize, of course, that kerosines will have to move up some before the prices for distillates and gas oils can advance, but they apparently prefer to store their oils at present and take their chances on making a little more money later in the season.

The refined gasoline market was in an unsettled condition due to the variety of prices quoted from the districts which make up the Mid-Continent.

Oklahoma and Kansas refiners quoted 58-60 U. S. Motor early in the week at 5.75 to 6.50 cents a gallon for unrestricted shipment. Lower quotations from North and West Texas, however, cut into the picture so drastically, with the small volume of orders available, that a wider range of prices developed by October 11.

North and West Texas refiners had prices of 5.375 cents and up for U. S. Motor, with reports of gasoline available for resale at 5.125 to 5.25 cents, Group 3 freight basis.

Jobbers continued to buy only for immediate needs, keeping their storage tanks as empty as possible. The possibility of a crude cut continued to hover over the Mid-Continent, and more evidence was supplied this week when the Panhandle Refining Co. made another reduction in the price it will pay for crude in its pipelines. This action was followed by two other companies, the result being that quite a sizeable amount of crude was moving in the North Texas field at prices under those posted by the major buyers.

A report was heard late in the week that a refiner in Texas had contracted to supply a buyer for an independent exporter with approximately 3,000,000 gallons of 375 e. p. gasoline. The report could not be confirmed Saturday, but it was known the refiner had been investigating the export market with the hope of obtaining some business.

The price was reported to have been 5.875 cents a gallon, north Texas. That price compares with a price of approximately 5.80 or 5.90 cents a gallon the refiners in north Texas who have contracts with an export company are receiving at the present time.

Natural gasolines finally responded to the pull on them made by the lower refined gasoline prices. Quotations were unchanged at 6 cents early in the week but dropped to 5.75 cents by Oct. 11. Demand slowed up somewhat after the U. S. Motor price swung under that of naturals and manufacturers reported several refiners had cut down their requirements of naturals.

The reduction in prices was considered a natural move as a result of the refined oil market and in no way reflected a change in the excellent technical position in which naturals have been placed due to lower production.

Kerosines in Oklahoma continued to be sluggish, most sellers reported this week. Prices were unchanged. No export inquiries were reported. Kansas refiners said the demand for kerosine was comparatively good with them all week. North Texas refiners reported the oil was not as free as it had been 30 days ago, but no changes were noted in prices. The Arkansas and Louisiana refiners said their kerosine orders were sufficient to handle their production.

Bright stock manufacturers found business extremely slow throughout the week. Competition was encountered on all sides and prices lost from 1 to 3 cents a gallon, depending on the grade. Two or three manufacturers who had been asking up to 25 cents a gallon for their low pour test 150-160 vis. 210 bright, were forced to reduce quotations to 20 to 22 cents in order to meet the competition, not only from this but also from other districts. Those selling the higher cold test oils reduced quotations in some instances to under 20 cents a gallon.

Neutral oil prices were unchanged but demand was reported light by most manufacturers. More competition had developed in the steam refined cylinder stocks as a result of increased production around the Oklahoma City field. Prices, however, were steady throughout the week

Wax prices were unchanged, the 124-126 white crude scale grade bringing 2.25 cents a pound, with demand comparatively good.

TORONTO—International Petroleum Co. Ltd., produced an average of 2,544,744 barrels of crude oil monthly during the first half of 1930, compared with an average of 2,600,472 barrels monthly average during 1929. Shipments averaged 2,016,387 barrels monthly as against 1,956,202 barrels monthly during 1929.

Correction

The asphalt handling plant being built at Fawley, England, is the property of the Agwi Petroleum Corp. and not of the Anglo-American Oil Co. as erroneously stated on Page 75 of the Sept. 10 issue.

TORONTO—An expert to investigate natural gas supply by United States and Canadian companies has been appointed by the cities of Regina, Moose Jaw, Swift Current and Saskatoon, Sask. Gas would be furnished from the Turner Valley, Medicine Hat and Montana gas fields.

Letters to the Editor

NATIONAL PETROLEUM NEWS,
Cleveland, O.
Dear Sir:

We all feel the same way about it.

"At New Orleans, for example, the new posted price of gasoline at the pump was 13.5 cents without state and *perish* taxes."

From first sentence of last paragraph, page 19, Oct. 1 issue, article about 1 cent discount for cash offered at S. O. Louisiana stations.

E. L. ROEDER,
Great West Refining Co.,
Minneapolis, Minn.

* * *

Mr. E. L. Roeder,
Great West Refining Co.,
1203 Foshay Tower,
Minneapolis, Minn.
Dear Mr. Roeder:

We hope the orthographical error that appeared in the Standard of Louisiana discount story in our October 1 issue is not ominous. It may be, however, because Louisiana is now trying to get a 6-cent tax in addition to the *parish* taxes. We wonder how long we can withstand these recurring gasoline tax increases and not *perish*.

We feel the same as you, but are glad to see that there's one oil man left who's still clinging to a sense of humor.

Very truly yours,
NATIONAL PETROLEUM NEWS,
R. B. Stafford,
Editorial Department.

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect October 13

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	5.50–6.00	(See note)	5.50 – 6.00	(See note)	.....
Kansas	6.00–6.25	.....	.....	.....	S. O. Neb. & Indiana Territory, etc.
Kansas	.....	.....	6.2292	(Wt. Avg.)	Kansas only.
North Texas	5.375–5.50	.....	5.375–5.625	.....	.....
West Texas	5.25–5.50	.....	5.25 –5.50	.....	.....
Louisiana-Arkansas	5.75–6.00	.....	.....	.....	Michigan, Ohio and Indiana.
Louisiana-Arkansas	.....	.....	6.25	.....	State or differential haul.
Indiana-Illinois	5.50–6.00	.....	.....	*	S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

NOTE: No sales of this gasoline were reported on October 13; these prices represent majority of quotations only.

Chicago Resale Market

CHICAGO, Oct. 11

SPOT gasoline prices continued to move downward in the Chicago market last week. While an occasional sale was reported as low as 5.25 cents and as high as 6.50 cents, the bulk of U. S. Motor sold Oct. 11 at 5.375 to 5.875 cents. Most of the 5.375-cent sales reported were on gasoline from North and West Texas, although some Oklahoma Motor moved at this figure. Low cold test gas and fuel oils were in steady demand and prices were higher in most quarters.

Following prices represent majority of sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as North and West Texas, Arkansas, Louisiana, Indiana, Illinois, Kentucky, etc.

	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
58-60 U. S. Motor, 437 e.p.	5.375– 5.875	5.625– 6.00	5.875– 6.25
†56-62 400-437 e.p. anti-knock gasoline	6.25 – 7.125	6.50 – 7.375	6.50 – 7.375
60-62 437 e.p. gasoline	5.50 – 6.00	5.75 – 6.125	6.00 – 6.375
60-62 400 e.p. gasoline	5.75 – 6.25	6.125– 6.375	6.375– 6.625
64-66 375 e.p. gasoline	6.375– 6.875	6.50 – 6.875	6.75 – 7.00
68-70 350-360 e.p. gasoline	6.875– 7.125	6.875– 7.25	7.00 – 7.25
*Domestic Aviation Gasoline	8.25 – 8.50	8.25 – 8.75	8.25 – 8.75
41-43 w.w. kerosine	3.125– 3.375	3.125– 3.375	3.125– 3.375
42-44 w.w. kerosine	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
38-40 straw distillate	2.875– 3.00	2.875– 3.00	2.875– 3.00
32-36 ordinary dark gas oil	2.25 – 2.375	2.25 – 2.375	2.125– 2.375
32-36 dark zero gas oil	2.50 – 2.75	2.375– 2.625	2.375– 2.50
32-36 straw zero gas oil	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875
28-30 zero fuel oil (per bbl.)	$0.825–$0.90	$0.825–$0.875	$0.80 –$0.85
28-30 fuel oil (per bbl.)	$0.80 –$0.85	$0.80 –$0.825	$0.80 –$0.825
24-26 fuel oil (per bbl.)	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65
18-22 fuel oil, low sulfur (per bbl.)	$0.50 –$0.55	$0.50 –$0.525	$0.50 –$0.525
18-22 fuel oil, high sulfur zero (per bbl.)	$0.525–$0.575	$0.50 –$0.55	$0.50 –$0.55
14-16 fuel oil (per bbl.)	$0.425–$0.475	$0.425–$0.475	$0.425–$0.475

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Over 45% benzol equivalent. Prices represent quotations and sales.

Weighted Average Prices

OKLAHOMA

	Oct. 13 No. of Cars	Oct. 13 Price	Oct. 6 No. of Cars	Oct. 6 Price	Sept. 29 No. of Cars	Sept. 29 Price
58-60 U. S. Motor, 437 e.p.	..	5.50–6.00 (See note)	4	5.7500	4	6.3125
60-62 437 e.p. gasoline	..	5.75–6.25 (See note)	6	6.1667	..	6.50–6.75 (See note)
60-62 400 e.p. gasoline	..	6.25–6.75 (See note)	1	6.7500	1	6.7500
64-66 37 e.p. gasoline	..	6.75–7.00 (See note)	..	7.00 (See note)	..	7.00–7.25 (See note)
58-60 437 e.p. gasoline (Full U. S. Motor specifications not guaranteed.)	..	5.50–6.00	..	5.75–6.25	..	6.125–6.375

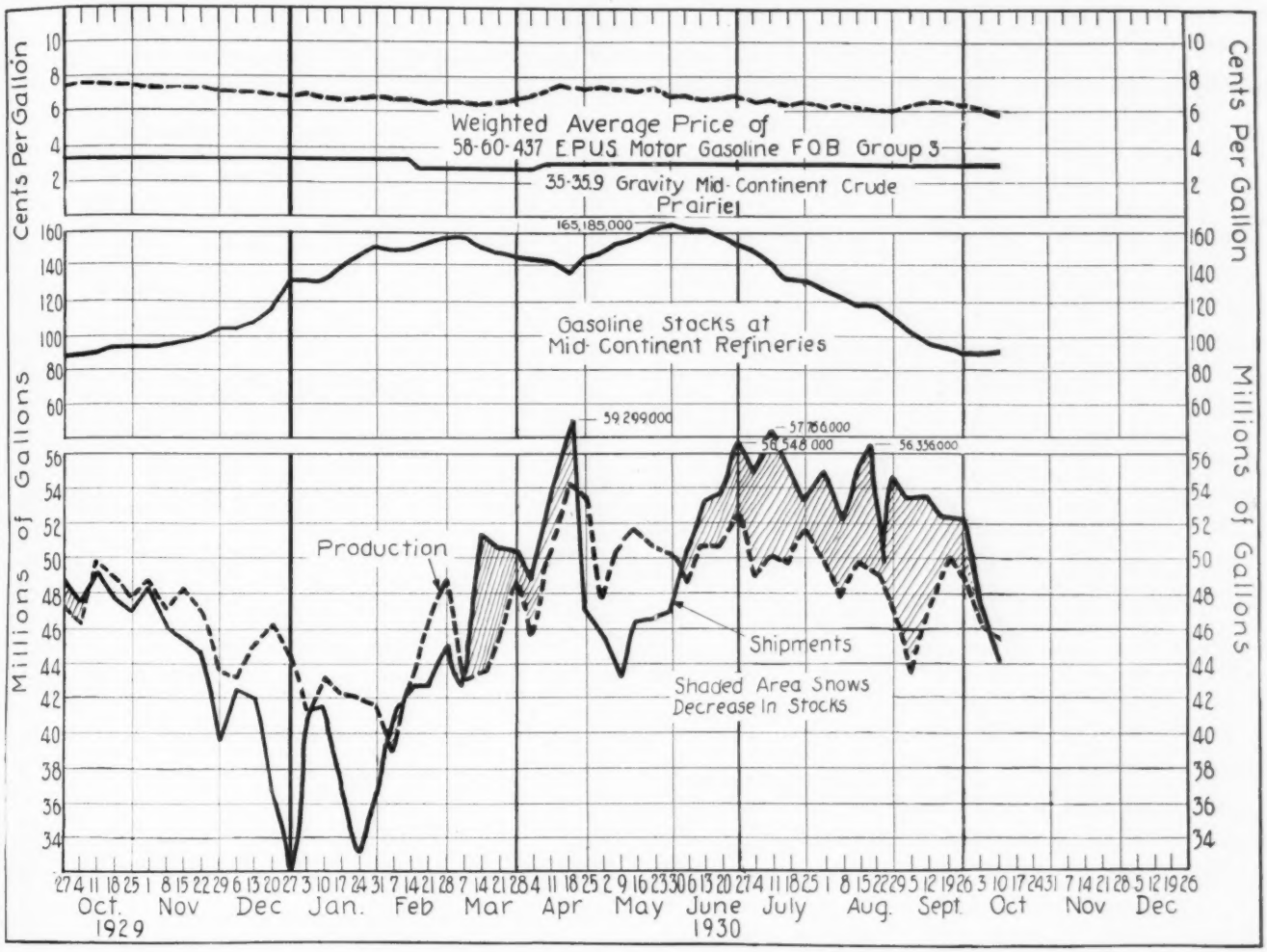
KANSAS

	Oct. 13 No. of cars	Oct. 13 Price	Oct. 6 No. of cars	Oct. 6 Price	Sept. 29 No. of Cars	Sept. 29 Price
58-60 U. S. Motor, 437 e.p.	6	6.2292	8	6.4062	11	6.6250

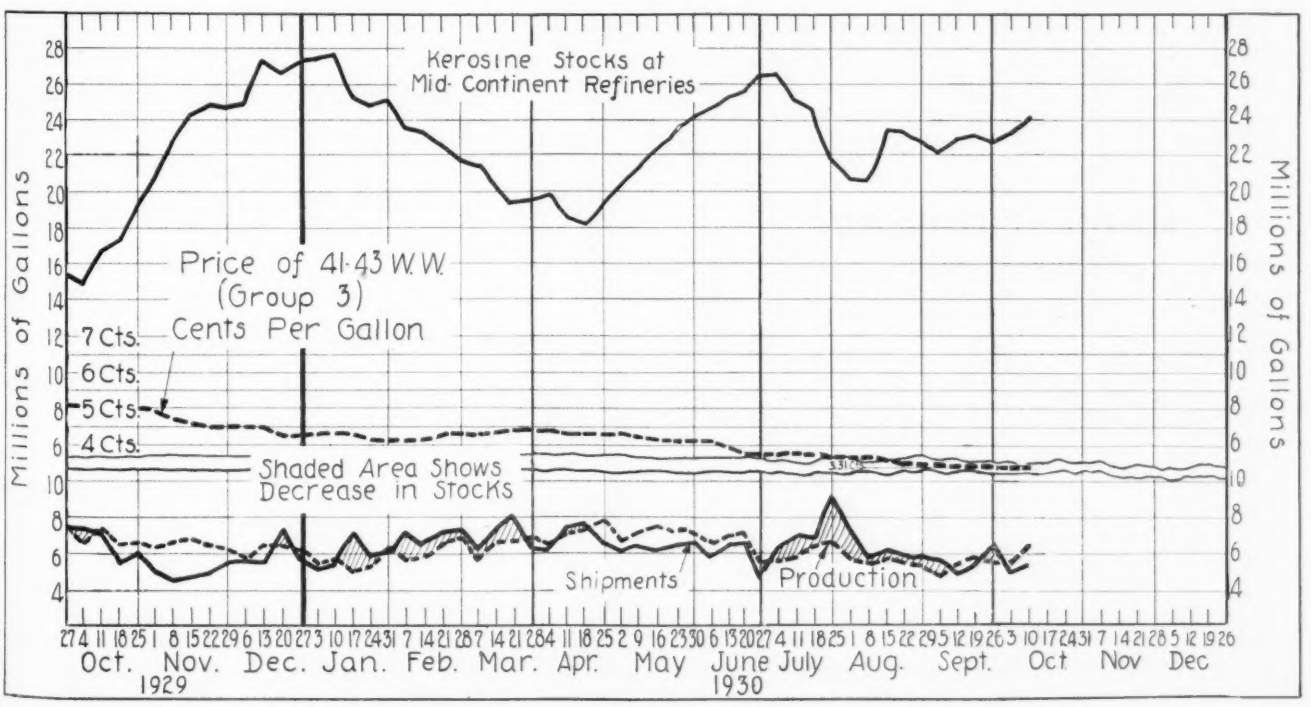
Note: No sales reported for the gasoline marked "see note" on the dates so marked; prices shown on such dates represent majority of quotations only

Barometer of Mid-Continent Refinery Market—Week Ending October 10

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 98



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
48-50 450 e.p. naphtha...	5.50	5.75	6.00
50-52 450 e.p. naphtha...	5.50	5.75	6.00
56-58 450 e.p. gasoline...	5.50	5.75 – 6.00	6.00 – 6.25
58-60 450 e.p. gasoline...	5.50	5.75 – 6.00	6.00 – 6.25
64-66 390 e.p. gasoline...	6.50 – 6.75	6.625– 6.75	6.625– 6.75
68-70 350-360 e.p. gasoline	7.00 – 7.25	7.50	7.50 – 7.75
‡Domestic Aviation Gasoline.....	7.00 – 8.00	7.50 – 8.50	7.50 – 8.50

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
54-56 Naphtha.....	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
58-60 U.S. Motor 437 e.p.	6.625– 7.00	6.50 – 7.00	6.50 – 7.00
60-62 400-410 e.p. gasoline	6.875– 7.25	6.625– 7.25	6.75 – 7.25
64-66 390 e.p. gasoline...	7.50 – 7.75	7.25 – 7.50	7.50 – 8.25
68-70 350-360 e.p.....	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline

Ohio, delivery at any point.....	9.00	9.00	9.00

KANSAS (F. o. b. refinery Kansas destination)

60-62 437 e.p. gasoline...	6.50	6.75	7.00 – 7.25
60-62 400 e.p. gasoline...	6.75	7.00	7.25 – 7.50
64-66 375 e.p. gasoline...	7.00 – 7.25	7.25	7.50 – 7.75

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline...	5.25	5.50 – 5.75	6.00
58-60 450 e.p. gasoline...	5.25	5.50 – 5.75	6.00
58-60 U.S. Motor 437 e.p.	5.375– 5.625	5.75	6.00 – 6.25
60-62 400 e.p. gasoline...	5.75 – 6.00	6.00	6.50
64-66 390 e.p. gasoline...	6.25	6.25	6.50 – 6.75
64-66 375 e.p. gasoline...	6.50	6.50	6.75
68-70 350-360 e.p. gasoline	7.00	7.00	7.25

WEST TEXAS (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	5.25	5.25	5.50
58-60 437 e.p. gasoline....	5.25	5.50	5.75 – 6.00
58-60 U.S. Motor 437 e.p. gasoline.....	5.25 – 5.50	5.50 – 6.00	6.25 – 6.50

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e.p.	6.25	6.50	6.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	6.25	6.50	6.50

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	10.00 –12.50	10.00 –12.50	9.00 –12.50
54-58 U.S. Motor, for outside state shipment....	7.25 – 8.50	8.00 – 9.50	7.50 – 9.50
58-61 375-400 e.p. gasoline	11.00 –13.50	11.00 –13.50	11.00 –13.50
42-45 Engine Distillate 445-480 e.p.....	9.00 –10.50	9.00 –10.50	8.00 – 9.50

NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	5.75	5.875–6.00	6.00
Grade A, 72-79.9, 90% Recovery.....	5.75	6.00	6.00
Grade BB, 84-92, 85% Recovery.....	5.75	6.00	6.00
Grade B, 76-83.9, 85% Recovery.....	5.75	6.00	6.00
Grade C, 80-92, 78% Recovery.....	5.75	6.00	6.00

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery.....	5.625– 5.75	6.00	6.00
Grade A, 72-79.9, 90% Recovery.....	5.75	6.00	6.00
Grade BB, 84-92, 85% Recovery.....	5.625– 5.75	6.00	6.00
Grade B, 76-83.9, 85% Recovery.....	5.625– 5.75	6.00	6.00
Grade C, 80-92, 78% Recovery.....	5.625– 5.75	6.00	6.00

NORTH LOUISIANA (F. o. b. Monroe District)

	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
Grade AA.....	†6.00	†6.00	†6.00
Grade BB.....	†6.00	†6.00	†6.00
Grade C.....	†6.00	†6.00	†6.00

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending.....	7.75 – 9.00	7.75 – 9.00	7.25 – 8.50

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w. w. kerosine.....	4.875– 5.125	4.875– 5.25	4.875– 5.25
46 w. w. kerosine.....	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
47 w. w. kerosine.....	5.375– 6.00	5.375– 6.00	5.375– 6.00
300 mineral seal.....	5.50 – 6.00	5.00 – 6.00	5.00 – 6.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosine.....	3.125– 3.50	3.125– 3.50	3.125– 3.50
42-44 w.w. kerosine.....	3.50 – 4.00	3.50 – 4.00	3.50 – 4.00

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosine.....	4.00 – 4.25	4.00 – 4.25	4.25 – 4.50
42-44 w.w. kerosine.....	4.75	4.75	4.75 – 5.00

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosine.....	3.00	3.00	3.00
41-43 w.w. kerosine.....	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosine.....	4.00	4.00	4.00 – 4.25
42-44 w.w. kerosine.....	4.25	4.25	4.25 – 4.50

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w.w. kerosine.....	4.00	4.00	4.00

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosine.....	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.		(Viscosity at 70° F.)	
200 No. 3 Assoc. Filt....	17.50 –19.00	17.50 –20.00	18.00 –21.00
180 No. 3 Assoc. Filt....	15.50 –17.00	16.00 –17.00	16.00 –17.00
150 No. 3 Assoc. Filt....	11.25 –12.00	11.25 –13.00	11.25 –13.00
		(Non Viscous)	
34 Grav. 330-340 Flash..	5.50 – 6.50	5.50 – 6.50	5.50 – 6.50

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

Vis. Color		(Viscosity at 100° F.)	
100—No. 2.....	6.00	6.00	6.00
150—No. 3.....	7.50	7.50	7.50
150—No. 4.....	7.00	7.00	7.00
180—No. 3.....	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
180—No. 4.....	8.50	8.50	8.50
180—No. 5.....	8.00	8.00	8.00
200—No. 3.....	10.00 –10.50	10.00 –10.50	10.00 –10.50
200—No. 4.....	10.00	10.00	10.00
200—No. 5.....	9.50	9.50	9.50
220—No. 3.....	12.50	12.50	12.50
220—No. 4.....	12.00	12.00	12.00
220—No. 5.....	11.00	11.00	11.00
240—No. 3.....	13.50 –14.00	13.50 –14.00	13.50 –14.00
240—No. 4.....	12.50 –13.00	12.50 –13.00	12.50 –13.00
240—No. 5.....	12.00	12.00	12.00
280—No. 3.....	16.00	16.00	16.00
280—No. 4.....	15.00	15.00	15.00
280—No. 5.....	14.00	14.00	14.00

†Prices nominal ††Only one refiner quoting *Quotations only

**Represents Both Sales and Quotations.

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis. Color	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
	(Viscosity at 100° F. pour test 0)		
100—No. 2 Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200—No. 3 Pale	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
300—No. 3 Pale	10.75 –11.00	10.75 –11.00	10.75 –11.00
500—No. 3½ Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
750—No.4 Pale	13.50 –13.75	13.50 –13.75	13.50 –13.75
1200—No. ‡4 Pale	16.00 –16.50	16.00 –16.50	16.00 –16.50
2000—No. ‡4–5 Pale	17.00 –17.50	17.00 –17.50	17.00 –17.50
200—No. 5½ Red Oil	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
300—No. 5½ Red Oil	10.00 –10.25	10.00 –10.25	10.00 –10.25
500—No. 6 Red Oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
750—No. 6 Red Oil	12.75 –13.00	12.75 –13.00	12.75 –13.00
1200—No. 5-6 Red Oil	15.00 –15.25	15.00 –15.25	15.00 –15.25
2000—No. 6 Plus Red Oil	17.00 –17.50	17.00 –17.50	17.00 –17.50

‡Color No. of 1200 pale oil should have been 4, instead of 5, and of 2000, color No. should have been 4-5, instead of 4, as shown in previous issues.

‡CALIFORNIA (F. o. b. California refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50	11.50	11.50
300—No. 3	13.00	13.00	13.00
450—No. 3	15.50	15.50	15.50
550—No. 3	16.50	16.50	16.50
600—No. 3	17.00	17.00	17.00
200—No. 5	11.00	11.00	11.00
300—No. 5	12.00	12.00	12.00
400—No. 5	14.00	14.00	14.00
500—No. 5	15.00	15.00	15.00
600—No. 5	16.00	16.00	16.00
700—No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Bright stock prices represent quotations to domestic jobbers only.

190-200 Vis. D at 210° Brt. St.	28.00 –30.00	30.00	30.00
150-160 Vis. D at 210° Brt. St., 15-20 cold test	20.00 –22.00	23.00 24.00	23.00 –24.00
150-160 Vis. D Brt. Stock, 25-45 cold test	19.00 –20.00	20.00 –23.00	20.00 –23.00
150-160 Vis. E 210° Brt. St.	18.00 –20.00	20.00 –23.00	20.00 –23.00
600 St. Ref. Olive Green	8.00	8.00	8.00
600 St. Ref. Dark Green	8.00	8.00	8.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	10.25 –11.50	10.25 –11.50	11.00 –11.50
650 Steam Refined	15.00 –16.00	15.00 –16.00	15.00 –16.00
600 Flash	16.50 –19.00	17.00 –19.00	17.00 –19.00
630 Flash	24.00 –28.00	24.00 –28.00	25.50 –28.00
600 Warren E	15.50 –17.00	16.50 –18.00	16.50 –18.00
600 Oil City E	15.00 –16.50	15.50 –17.00	15.50 –17.00
600 D Filtered	18.50 –19.50	19.00 –20.00	19.00 –21.00
Cold Test Stock, 140-150 vis. at 210°, 540-550 flash, No. 8 color, below 35 pour test	‡22.00 –24.00	23.00 –25.00	23.50 –25.00
No. 8 color, above 35 pour test	19.50 –20.00	19.50 –21.00	20.50 –23.00
No. 6-6½ color diluted, 40-50 pour test	†19.00 –21.00	†19.00 –21.00	20.00 –22.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale, a.m.p.	2.25 – 2.375	2.25 – 2.50	2.375– 2.50
124-126 white crude scale, a.m.p.	2.25 – 2.50	2.375– 2.50	2.375– 2.50

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

124-126 White Crude Scale, a.m.p.	2.25	2.25	2.25

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	3.875– 4.00	3.875 – 4.00	4.00 – 4.25
30-34 fuel oil	3.75 – 4.00	3.75 – 4.00	4.00
23-28 fuel oil	3.75 – 4.00	3.75 – 4.00	4.00

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
38-40 straw distillate	3.00 – 3.125	3.00 – 3.125	2.875– 3.125
36-38 straw distillate	2.875– 3.00	2.875– 3.00	2.75 – 2.875
32-36 straw gas oil	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625
32-36 straw gas oil zero	2.75 – 2.875	2.75 – 2.875	2.75
32-36 dark gas oil	2.375– 2.50	2.375– 2.50	2.25 – 2.375
32-36 dark gas oil zero	2.75 – 2.875	2.75 – 2.875	2.625– 2.75
28-30 zero fuel oil (per bbl.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0.90
28-30 fuel oil (per bbl.)	$0.80 – 0.825	$0.80 – 0.825	$0.80 – 0.825
26-28 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.75	$0.70 – 0.75
24-26 fuel oil (per bbl.)	$0.60 – 0.65	$0.575– 0.65	$0.575– 0.65
22-26 fuel oil (per bbl.)	$0.575– 0.60	$0.575– 0.60	$0.575– 0.60
18-22 fuel oil (per bbl.)	$0.475– 0.525	$0.475– 0.525	$0.475– 0.525
16-20 fuel oil (per bbl.)	$0.425– 0.475	$0.425– 0.475	$0.425– 0.475
14-16 fuel oil (per bbl.)	$0.40 – 0.45	$0.40 – 0.45	$0.40 – 0.45

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
36-38 straw distillate	3.00	3.00	3.00
32-36 straw gas oil	3.00	3.00	3.00
18-22 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.75	$0.70 – 0.75
10-14 fuel oil (per bbl.)	$0.55 – 0.65	$0.55 – 0.65	$0.55 – 0.65

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
38-40 p.w. treated distillate	3.125– 3.25	3.125– 3.25	3.125– 3.25
32-36 gas oil, cracked	2.50 – 2.625	2.375– 2.50	2.375– 2.50
32-36 St. reduced gas oil	2.375– 2.50	2.25 – 2.375	2.25 – 2.375
24-26 fuel oil (per bbl.)	$0.50 –$0.55	$0.50 –$0.55	$0.50 –$0.55
20-24 fuel oil (per bbl.)	$0.45 –$0.50	$0.45 –$0.50	$0.45 –$0.50
18-22 fuel oil (per bbl.)	$0.40 –$0.45	$0.40 –$0.45	$0.40 –$0.45

****WEST TEXAS** (F. o. b. West Texas refinery, or unrestricted shipment)

34-38 gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
30-32 gas oil	1.875– 2.125	1.875– 2.125	1.875– 2.125
28-30 zero gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
18-22 fuel oil (per bbl.)	$0.50 –$0.60	$0.50 –$0.60	$0.50 –$0.60

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	*3.25	*3.25	*3.25
32-36 gas oil, straw	*3.25	*3.25	*3.25
14-16 fuel oil (per bbl.)	$0.75 –$0.85	$0.75 –$0.85	$0.75 –$0.85

ARKANSAS (Ark., N. La. and Miss destination)

32-36 gas oil, straw	3.25	3.25	3.25
32-36 dark gas oil	3.25	3.25	3.25
28-30 gas oil	3.00	3.00	3.00
20-24 fuel oil (per bbl.)	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
9-12 fuel oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.55 – 0.65	$0.55 – 0.65	$0.55 – 0.65
14-18 Bunker oil (per bbl.)	$0.70 – 0.85	$0.70 – 0.85	$0.70 – 0.85
30-34 gas oil (per bbl.)	$0.85 – 0.95	$0.85 –$0.95	$0.90 –$1.00
27 Plus Diesel oil (per bbl.)	$0.80 – 0.85	$0.80 –$0.85	$0.85 –$1.00

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. refinery. In tank cars ⅝c to ¾c per pound less.) Two refiners quoting.

Snow White	8.50	8.50	8.50
Lily White	7.50	7.50	7.50
Cream White	6.50	6.50	6.50
Light Amber	3.375– 3.625	3.375– 3.625	3.375– 3.625
Amber	3.125– 3.375	3.125– 3.375	3.125– 3.375
Red	2.875– 3.00	2.875– 3.00	2.875– 3.00

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

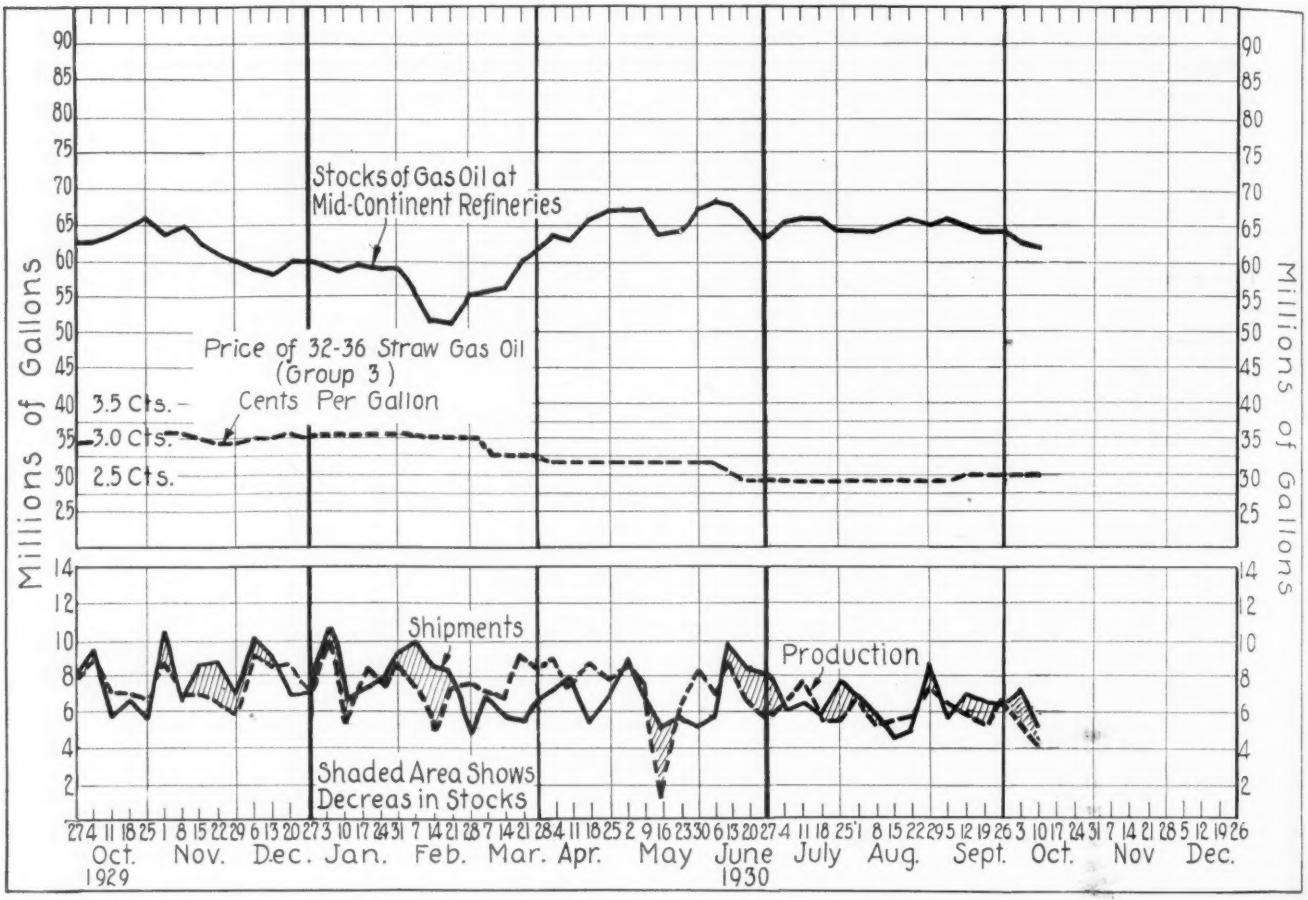
(Per ton in car lots)

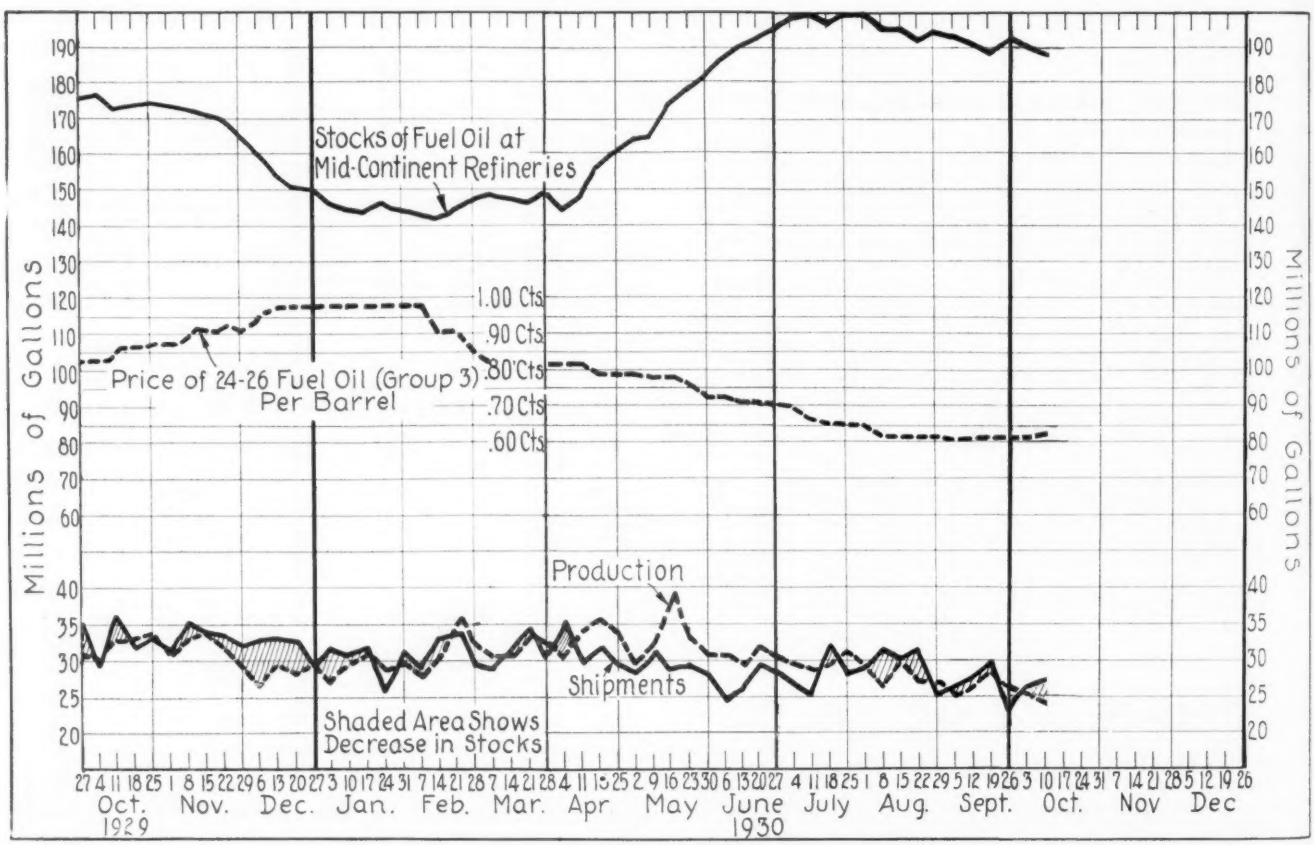
Lump	$4.50 –$5.00	$4.50 –$5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Represents Both Sales and Quotations.**

Barometer of Mid-Continent Refinery Market—Week Ending October 10

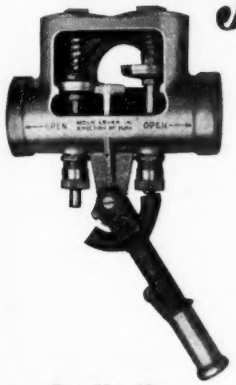
Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News





OPW

Valves *and* Fittings *are approved by the* Nation's Leaders



Cat. No. 68
Three-way Loading Valve

Lot R at the Tulsa Convention was well patronized. National leaders inspected the O.P.W. exhibit and expressed their approval.

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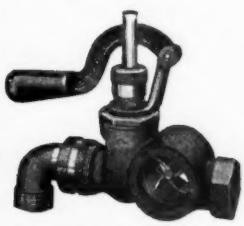
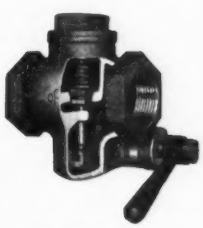
Cat. No. 45
No. 2 Bronze Visi-Flo

Cat. No. 21
Bronze Single Poppet
Foot Valve

Cat. No. 42
Double Poppet Vertical
Check Valve

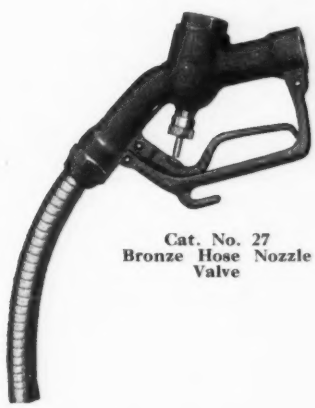


Cat. No. 62
Combination Gate Valve



Cat. No. 11
Bronze Globe Discharge
Valve

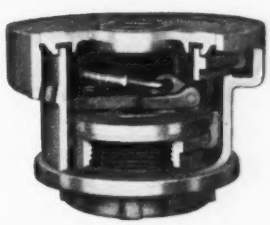
Cat. No. 70
Bronze
Hose
Elbow



Cat. No. 27
Bronze Hose Nozzle
Valve

Cat. No. 35
Cast-Iron Fill Cap

Cat. No. 14
Single Poppet Angle
Check Valve



Cat. No. 36
Lock Type Flush Fill Box
—Quick Opening

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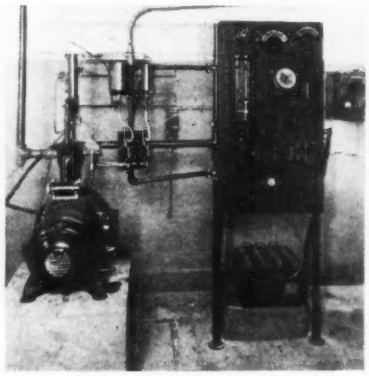

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Pennsylvania Markets

Gasoline Situation Improves

CLEVELAND, Oct. 11.—Increased activity in gasoline with advancing prices for this commodity outshone all other developments in the Western Pennsylvania refinery market the past week. Burning oils remained steady while lubricating oils continued dull. Cylinder stock and bright stock prices lost considerable ground.

Lower wholesale and retail gasoline prices in Ohio, which in turn have narrowed jobbers' margins materially, have brought back a good bit of the gasoline business Pennsylvania lost to other refining districts this summer when jobbers were enjoying wider margins. At that time they were willing to pay slightly higher prices for better quality gasoline.

Sellers throughout the field reported their gasoline stocks were in the best shape they had been so far this year. While there was no scarcity of gasoline reported, demand was such that low priced goods were practically wiped out of the market and in some instances prices were advanced. This was particularly true of U. S. Motor and other grades of gasoline under 64-66, 390 end point.

The Canadian tariff, which went into effect last month and which proved to be a hard knock against 64-66 gravity and higher grades of gasoline from the Pennsylvania field, has proved to be somewhat of a boon to the lower grades of Pennsylvania gasoline.

Previously 64-66 gravity and higher grades of gasoline had gone into Canada duty free. Now that all grades of gasoline take the 2-cent tariff, the demand from Canadian buyers is more for the lower grades.

U. S. Motor gasoline was available at 6.50 cents freely early the past week. Odd distress lots sold at still lower prices. The Canadian demand together with the better domestic demand cleared this stuff from the market and 6.625 cents was the low of the general market on Oct. 11. Resale agents in some districts were finding it difficult to buy under 6.75 cents, according to their reports. Some refiners who had been quoting 6.75 cents to the trade advanced their prices to 7 cents.

Kerosine was more freely offered throughout the week. Prices remained generally unchanged, however. The fuel oil situation still was relatively tight.

Buying of cylinder stocks and bright stocks failed to pick up sufficiently to keep prices from showing further recessions. Price ranges for all grades were down, largely on the high ends, however.

Wax was quoted 0.125-cent lower both for the 122-124 and 124-126 A.m.p. grades. There were few buyers at 2.25 cents a pound, New York, according to reports.

Injunction Refused Man Who'd Stop Merger

NEW YORK, Oct. 11.—Injunction sought by Hyman Shapiro to restrain a merger of the Petroleum Corp. of America and Sinclair Consolidated Oil Corp., has been refused in Supreme Court in New York.

Attorneys for Petroleum Corp. asserted there was no intention of a merger with Sinclair and the suit was brought by Shapiro because price of Petroleum Corp. stock had fallen. Shapiro is owner of 200 shares.

Shapiro's attorneys said they would press hearing of allegations in the suit that Petroleum Corp.'s assets were being wasted.

Kentucky Oil Men Publish Bulletin

LOUISVILLE, Oct. 9.—One of the first steps taken by the Kentucky Petroleum Marketers Association after appointing a full-time secretary and treasurer, was to begin publishing a news bulletin of association and oil industry activities in Kentucky.

The bulletin is called the Kentucky Petroleum Marketer. It is mimeographed and comes out twice a month. The first issue was out Sept. 20.

Herbert L. Clay, newly appointed secretary, is editor of the bulletin. He has also been appointed executive secretary of the Kentucky Committee of the national code of ethics, according to Cecil E. Cantrill, Indian Refining Co., chair-

Herbert L. Clay

man of the Kentucky committee.

The purpose of the bulletin is to "promote businesslike competition among friendly marketers." It will contain general news of the industry, news of the marketing code, market summaries, personal notes, membership items and oil statistics covering Kentucky.

Mr. Clay will live in Lexington and maintain code headquarters there, while the association headquarters remain in Louisville.

Among other state oil associations putting out either mimeographed or printed bulletins regularly are Ohio, Pennsylvania, Michigan, Wisconsin, Indiana, Illinois, Nebraska, Iowa, Texas, Kansas and Missouri.

Refiners Installing Stabilizers

TULSA, Oct. 9.—The Pacific American Gasoline Co., subsidiary of the Huber Petroleum Co., is increasing its present absorption type gasoline plant at Borger from a capacity of 400,000 gallons per day to 800,000 gallons per day. A 20,000-gallon stabilizer is also being installed. The equipment is being furnished by the Southwestern Engineering Corp.

Among other construction jobs in which Southwestern reports it is furnishing an important part of the equipment are the following:

The rerun unit, gasoline recovery plant, and stabilizing equipment for a modern American refinery to be constructed at Bordeaux, France, for the Societe des Refineries de Petroles de la Gironde. The plant will include a topping unit of 7500-barrel capacity, two 2500-barrel cracking units, one 4000-barrel rerun unit, as well as the vapor recovery and absorption units.

A 3000-barrel rerun unit to handle pressure distillate from a Pratt vapor cracking unit is among the additions being made to the equipment of the Lubrite Refining Co. at its East St. Louis refinery. In addition, a vapor recovery plant capable of circulating 220,000 gallons of oil, and of extracting up to 50 per cent of butane from the combined gas from the topping, cracking, rerun and tankage equipment. A 100,000-gallon stabilizer for stabilizing a feed composed of cracked gasoline and absorption gasoline also will be erected.

Considerable foreign business is reported by the company. "Malopolska," one of the leading Polish producers and refiners located near Lwow, Poland, has ordered two 60,000-gallon stabilizers; "Cepsa," a Spanish owned company with a refinery in the Canary Islands are about to start up a 1500-barrel unit.

NEW YORK.—The new chairman of the Maine code committee is W. H. Schofield, Tide Water Oil Sales Corp., South Portland, Me., who succeeds Theodore E. Emery, formerly president of the Kennebec Oil Co., Augusta.

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New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

Eastern Domestic Markets

Price Shading Appears Again

Staff Special
NEW YORK, Oct. 11

PRICE cutting again appeared in eastern gasoline markets with renewed vigor in the week ended Oct. 11. The week opened with traders generally believing the bottom had been reached in the recent decline of prices but the tone of the market changed considerably as the week progressed.

While U. S. Motor gasoline continued to be offered at New York harbor at 7.50 to 7.75 cents, several sellers complained that the 7.50-cent figure failed to attract any business. Complaints from some quarters were directed at companies selling under the guise of contracts at prices lower than the spot market, thereby using their paper agreements to hide what amounts to active competition in the open market. So hard pressed were a few sellers in the open market that they talked of reducing their spot prices in order to get their share of the business.

One company admitted shading the 7.50-cent figure to 7.25 cents but its sales were not sufficient to be representative of the general market.

The market for California gasoline at New York harbor was disturbed by rumors of price shading but 8 to 8.25 cents were the lowest prices quoted by a majority of the sellers.

The Philadelphia and Baltimore markets for U. S. Motor gasoline remained unchanged at 7.75 to 8 cents. The market for California gasoline in the former district was unchanged at 8.25 cents flat and according to reports from a leading company, business was fairly good. In the Baltimore district, where 8 cents was still generally quoted for California gasoline, underselling was reported but up to this time sales at lower prices have not been confirmed.

New England markets which a week ago were unsettled became more orderly this week. The delivered prices of 8 to 8.50 cents for U. S. Motor gasoline in Boston and vicinity represented sales made by most companies operating in this district.

Kerosine prices remained generally unchanged in all districts. The demand for this commodity fell off slightly due to higher temperatures along the seaboard.

Gas oil demand at New York harbor was not equal to the supply that traders had on hand and lower prices featured the market in this district. The Boston market for gas oil was unchanged with prices ranging from 4.75 to 5.25 cents. Furnace oil was in good demand with prices unchanged.

Diesel Engine Course At "Poly"

NEW YORK—An evening course in Diesel engines is being offered for the seventh consecutive year at the Polytechnic Institute of Brooklyn, N. Y., beginning Sept. 30. It is open to the general public.

The many new uses discovered in recent years for Diesels in all trades in which the building, repair and upkeep of prime movers is concerned, has made this course of importance to steam and automotive engineers as well as to all allied trades.

Value of Canadian Refined Oils Gains

TORONTO—Canadian production of refined petroleum products in 1929 increased $16,300,000 in value over 1928 value, totaling $99,408,314.

This total included output valued at $98,384,180 from 15 refineries and an output valued at $1,024,134 from 10 oil and grease compounders.

Gasoline output for 1929 was 436,620,614 Imperial gallons, one-third of which was produced by cracking.

Gas and fuel oil sales were 387,069,829 gallons.

Gulf Coast Markets

Bunker Oil Sells 10 Cents Lower

STAFF SPECIAL
NEW YORK, Oct. 11

GULF coast markets, generally speaking, continued inactive the past week. Foreign business still failed to put in its appearance. The dearth of inquiries from abroad was noticeable, according to reports of various members of the trade.

While it is commonly known that a number of the leading commercial countries of the world are in the throes of political disorder, yet those close to the export end of the oil industry would not place the responsibility for commercial inactivity on that ground. Abnormal stocks abroad have been attributed as the cause for foreign silence as well as a misunderstanding created by our own disturbed market condition.

Domestic activity likewise was very quiet with the exception of demand for Grade C Bunker oil in cargo lots. Refineries at the Gulf were long on this commodity and were making broad price concessions in order to recover storage space. The prices quoted a week ago of $0.72 to $0.85 were given by sellers as representing the market at that time but during the past week underselling was so prevalent that the price range dropped to $0.65 to $0.75 per barrel. These prices as far as could be ascertained were for a product meeting Grade C specifications. Some distress oil was available at $0.60, it was said, but whether this material was generally marketable was unconfirmed.

Prices of U. S. Motor gasoline in bulk and in cases for export shipment remained unchanged. In large quantities, water white kerosine in cases continued to be sold at $1.45 per case but in smaller quantities, prices were as high as $1.50. Prime white was quoted at $1.35 per case.

Panuco heavy crude remained unchanged at $0.55 per barrel. The market for Venezuela crude continued quiet with quotations generally $0.75 per barrel, f.o.b. deepwater in the Lake Maracaibo region.

Wax Markets

Demand Continues Light

NEW YORK, Oct. 11.—Wax markets continued to mark time with buying interest at low ebb, according to dealers' reports for the past week.

Several sellers reported that production was lower at present than in the past few weeks; stocks and exports were unchanged, with domestic consumption on the decline. In short, the open market generally was unchanged. Representatives of three large refineries reported that their entire wax output was committed to buyers under contract.

In the New Orleans market the price of 123-125 fully refined wax spread to 3.25 cents from a quotation of 3.125 cents flat; 125-127 fully refined was reported off 0.125-cent. At New York, 125-127 and 128-130 fully refined were each quoted at narrower price ranges of 3.25 to 3.50 cents and 3.50 to 3.625 cents per pound, respectively.

N. P. N. Service Record

Some of the requests for information, data and advice, which were taken care of in various National Petroleum News offices in the past week are:

Michigan distributor referred to two sources who might advise him as to disposal of empty oil drums.

* * *

Pennsylvania street car company referred to chemical magazines which may have published articles on lead-base lubricants.

* * *

New York City law firm referred to source for copies of voluntary oil pro-ration agreements.

* * *

Minnesota automobile and oil dealer referred to N.P.N. booklet on oil accounting for marketers.

* * *

Other data furnished to inquirers by N.P.N. the past week include: Washington, D. C. law offices given name of court in which suit of California Independent oil operators against major operators was heard; crude oil manager of lubricant refiner, chief geologist of large production company and factory representative of Texas pump manufacturer called at Houston office of N.P.N. to discuss California conditions, Texas proration, and Tulsa exposition respectively.

* * *

Vermont oil distributor furnished names, addresses and brand names of motor oils of 11 leading oil companies marketing in New York and New England.

* * *

Large Ohio soap manufacturer given data on refining and marketing industry, including number of men employed in both, number of service stations in the U. S., number of stations owned by 15 of the largest oil companies, among other information.

* * *

Wisconsin advertising agent telegraphed names and addresses of 10 leading consulting engineers and designers of refinery equipment and cracking processes.

* * *

California natural resources department furnishes references to all important N.P.N. articles on Elwood field.

* * *

South Carolina oil jobber referred to N.P.N. series on accounting for small jobber; also to other sources for forms, records, etc.

* * *

Los Angeles oil broker referred to sources for government specifications on all petroleum products.

* * *

Nationally known extension university told how proration of flush fields is determined and carried out.

* * *

Minnesota equipment manufacturer referred to N.P.N. articles giving gasoline consumption figures by states and by months this year.

* * *

Ohio oil jobber referred to N.P.N. article telling how containers of gasoline and denatured alcohol should be labeled.

* * *

Nationally known chain store referred to N.P.N. article on vapor-lock in automotive fuel systems.

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We'll make up motor oils (Sharples Process) to your own specifications. Or if you prefer we'll recommend motor oils of tested specifications of this 50 year old refining organization. In either case you're sure to get the same kind of satisfaction we're rendering now to over 700 jobbers throughout the country.

Shipments can be made as quickly as you like in tank cars, compartment tank cars, barrels or drums. Write us for the full story. It's an interesting one.

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100% Pennsylvania Neutrals
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650 Steam Refined
600 Flash Steam Refined
Freedom Filtered Kerosene Oil

FREEDOM
100% PENNSYLVANIA OILS

FO-501

Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in some states.)

U. S. MOTOR GASOLINE	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
New York harbor	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
Portland district	**9.00 – 9.75	**9.00 – 9.75	**9.00 – 9.75
Boston district	**8.00 – 8.50	**8.00 – 8.50	**8.50 – 9.00
Providence district	**8.00 – 9.00	**8.00 – 9.00	**8.00 – 9.00
Philadelphia district	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
Baltimore district	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
Norfolk district	7.75 – 8.00	7.75 – 8.00	8.00
Charleston district	8.00	8.00	8.00
Savannah district	8.25	8.25	8.25
Jacksonville district	7.75 – 8.25	7.75 – 8.25	7.75 – 8.25
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
Philadelphia district	8.25	8.25	8.25 – 8.50
Baltimore district	8.00	8.00	8.00
‡DOMESTIC AVIATION GASOLINE			
New York harbor	10.75 –12.00	10.75 –12.00	10.75 –12.00
Philadelphia	10.75 –12.00	10.75 –12.00	10.75 –12.00
Baltimore	11.00 –12.00	11.00 –12.00	11.00 –12.00
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't' specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

WATER WHITE KEROSINE			
New York harbor	6.75	6.75	6.75
Philadelphia district	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75
Baltimore district	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
GAS OIL: 28-34 Gravity			
New York harbor	4.50 – 5.25	4.50 – 5.25	4.50 – 5.00
Boston district	4.75 – 5.25	4.75 – 5.25	4.50 – 5.00
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Boston district	5.50 – 6.00	5.50 – 6.00	6.00 – 6.25
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York Harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10

*Minimum delivered. †Nominal. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	Oct. 13	Oct. 6	Sept. 29
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	28.50 –30.50	28.50 –30.50	28.50 –30.50
600 D filtered	26.50 –28.00	26.50 –28.00	26.50 –28.00
600 Warren E filtered	22.50 –25.00	22.50 –25.00	22.50 –25.00
600 stm. refd. unfiltered	16.50 –18.00	16.50 –18.00	16.50 –18.00
650 stm. refd. unfiltered	20.75 –22.00	20.75 –22.00	20.75 –22.00
600 flash, steam refined	23.50 –25.00	23.50 –25.00	23.50 –25.00
630 flash, steam refined	31.50 –33.00	31.50 –33.00	31.50 –33.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.00 –21.00	19.00 –21.00	19.00 –21.00
250 vis. No. 6 color	17.50 –18.50	17.50 –18.50	17.50 –18.50
200 vis. No. 6 color	16.00 –17.00	16.00 –17.00	16.00 –17.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	22.00	22.00	22.00
180 vis. No. 3¼ color	17.50 –18.00	17.50 –18.00	17.50 –18.00
100 vis. No. 2¼ color	14.25 –15.50	14.25 –15.50	14.25 –15.50
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	30.00 –32.00	30.00 –32.00	30.00 –32.00
500 vis. No. 6½ color	27.50 –30.00	27.50 –30.00	27.50 –30.00
400 vis. No. 7¼ color	26.00 –29.00	26.00 –29.00	26.00 –29.00
300 vis. No. 6 color	22.00 –26.00	22.00 –26.00	22.00 –26.00
200 vis. No. 6 color	21.00 –23.50	21.00 –23.50	21.00 –23.50

Wax Markets

(Prices in cents per pound, A.S.T.M. tests. A.M.P. F.a.s. carload lots)

NEW YORK	Oct. 13	Oct. 6	Sept. 29
124-126 Yellow crude scale	2.125– 2.25	2.125– 2.25	2.125– 2.25
122-124 White crude scale	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
124-126 White crude scale	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
123-125 Fully refined	3.125– 3.25	3.125– 3.25	3.125– 3.25
125-127 Fully refined	3.25 – 3.50	3.375– 3.50	3.375– 3.50
128-130 Fully refined	3.50 – 3.625	3.50 – 3.75	3.50 – 3.75
130-132 Fully refined	3.625– 3.875	3.625– 3.875	3.625– 3.875
133-135 Fully refined	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
135-137 Fully refined	4.625	4.625	4.625
NEW ORLEANS			
124-126 Yellow crude scale	2.125– 2.25	2.125– 2.25	2.125– 2.25
122-124 White crude scale	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
124-126 White crude scale	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
123-125 Fully refined	3.125– 3.25	3.125	3.125
125-127 Fully refined	3.25 – 3.375	3.375	3.375
128-130 Fully refined	3.50	3.50	3.50
130-132 Fully refined	6.625– 3.75	3.625– 3.75	3.625– 3.75
133-135 Fully refined	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted. Bulk gasoline and kerosine prices are posted quotations of the Export Petroleum Assoc., Inc., governing about 90% of the gasoline and kerosine shipped to foreign ports from the Gulf)

GASOLINE	Prices Oct. 13	Prices Oct. 6	Prices Sept. 29
U. S. Motor	7.00	7.00	7.00
60-62, 400 e.p.	7.50	7.50	7.50
61-63, 390 e.p.	7.75	7.75	7.75
64-66, 375 e.p.	8.00	8.00	8.00
U. S. Motor, cases (cargoes)	$1.75	$1.75	$1.75
64-66, cases (cargoes)	$1.85	$1.85	$1.85
KEROSINE			
44 water white	6.00	6.00	6.00
41-43 prime white	5.00	5.00	5.00
Water white, cases (cargoes)	$1.45	$1.45	$1.45
Prime white, cases (cargoes)	$1.35	$1.35	$1.35
GAS & BUNKER OILS			
•26-30 translucent gas oil	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
*30 plus translucent gas oil	3.75	3.75 – 4.00	3.75 – 4.00
Grade C bunker oil, per bbl., cargoes	$0.65 –$0.75	$0.75 –$0.85	$0.75 –$0.85

*Less than ½ of 1% sulphur.

MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.55 –$0.60	$0.55 –$0.60	$0.55 –$0.60
Grade C bunker oil for bunkering purposes, taxes paid, per bbl.	$1.00	$1.00	$1.00
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	5.75 – 6.125	5.75 – 6.125	5.75 – 6.125
200 vis. No. 3 unfiltered pale	8.00 – 8.75	8.00 – 8.75	8.00 – 8.75
300 vis. No. 3 unfiltered pale	8.875– 9.50	8.875– 9.50	8.875– 9.50
500 vis. No. 3½ unfiltered pale	10.25 –11.25	10.25 –11.25	10.25 –11.25
750 vis. No. 4 unfiltered pale	12.50 –13.25	12.50 –13.25	12.50 –13.25
1200 vis. No. 5 unfiltered pale	16.00 –18.00	16.00 –18.00	16.00 –18.00
200 vis. No. 5-6 red oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 vis. No. 5-6 red oil	8.375– 8.75	8.375– 8.75	8.375– 8.75
500 vis. No. 5-6 red oil	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
750 vis. No. 5-6 red oil	11.50	11.50	11.50
1200 vis. No. 5-6 red oil	15.00 –15.50	15.00 –15.50	15.00 –15.50

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only.)

	Oct. 13	Oct. 6	Sept. 29
U. S. Motor gasoline	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
41-43 w.w. kerosine	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
*26-32 translucent gas oil	3.75 – 4.00	3.75 – 4.00	3.75 – 4.00
Grade C bunker oil, per bbl.	$1.00 –$1.05	$1.00	$0.95 –$1.00
Grade C bunker oil, per bbl. in cargoes	$0.65 –$0.75	$0.72 –$0.85	$0.72 –$0.85

*Less than ½ of 1% sulphur.

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Oct. 13	Oct. 6	Sept. 29
Gasoline, U. S. Motor, 53-55 Gravity	6.50 – 7.50	6.50 – 7.50	6.50 – 7.50
Gasoline, U. S. Motor-blends and special cuts	7.25 – 8.25	7.25 – 8.25	7.25 – 8.25
Gasoline, 400 e.p. blend	8.25 – 9.25	8.25 – 9.25	8.25 – 9.25
Gas Oil, 30-34, per bbl.	$0.85 –$0.95	$0.85 –$0.95	$0.87 –$1.00
Diesel Oil, 27 plus, per bbl.	$0.80 –$0.95	$0.80 –$0.95	$0.85 –$1.00
Bunker oil, 14-18, per bbl.	$0.65 –$0.90	$0.65 –$0.90	$0.65 –$0.90
Fuel oil, 14-18 per bbl.	$0.55 –$0.75	$0.55 –$0.75	$0.60 –$0.85
Kerosine, 38-40 w.w., 125-150 flash, per gal.	5.50 – 6.50	5.50 – 6.50	5.00 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Gasoline, 400 e.p. blend	$1.85 –$2.00	$1.85 –$2.00	$1.85 –$2.00
Kerosine, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

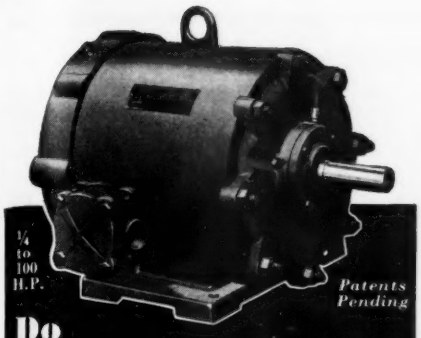
Note: Above Pacific Export market prices for gasoline and kerosine in cargo lots apply only on goods for coastwise shipment. Gasoline and kerosine prices for shipment to foreign ports are determined as follows: Difference in freight between U. S. Gulf to European Continent and California to European Continent —this difference plus 0.125c for handling, deducted from prices posted at U. S. Gulf by the Export Petroleum Assoc., Inc., which are above prices.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Oct. 13 Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	21	20
Gulf to U. K. or Continental ports*	11	11
North Atlantic to U. K. or Continental ports*	10	10
Calif. to North Atlantic ports (not E. of N. Y.)	$0.60	$0.60
Gulf to North Atlantic ports (not E. of N. Y.)**	16	18

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate. For Tampico 2c to 3c per bbl additional.



¼ to 100 H.P.

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Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect Oct. 13, 1930, as Posted by Principal Marketing Companies

Latest Changes in Tank Wagon Prices

Gasoline

S. O. New York—T. w. and s. s. cut 2c, Buffalo and Rochester, to 14.8c and 16.8c, and 15c and 17c, respectively, **Oct. 11.**

S. O. Louisiana—T. w. and s. s. cut 1c, New Orleans, to 14.5c and 15.5c, **Oct 4**, and cut 1c to 13.5c and 14.5c, **Oct. 7.**

T. w. and s.s. cut 1c, Memphis, to 16c and 17c, **Oct. 4**, and cut 1c to 15c and 16c, **Oct. 7.**

T. w. and s. s. cut 0.5c, Chattanooga, to 18c and 19c, **Oct. 4.**

T. w. and s. s. cut 1.5c, Little Rock, to 15c and 16c, **Oct. 7.**

T. w. and s. s. cut 2c, Knoxville and Nashville, to 17c and 18c, and 16c and 17c respectively, **Oct. 7.**

Magnolia Petroleum—T. w. and s. s. cut 1c, Muskogee, to 15c and 18c, **Sept. 30.**

T. w. and s. s. cut 2c, Tulsa, to 14c and 18c, **Sept. 30.**

T. w. and s. s. cut 1c, Oklahoma City, to 14c and 17c, **Oct. 2.**

T. w. cut 1c, s. s. 2c, Fort Smith and Little Rock, to 14.5c and 15.5c, and 15.5c and 16.5c respectively, **Oct. 3.**

Atlantic Refining — T. w. and s. s. cut 2c, Fall River, to 14.1c and 15.1c, **Aug. 15.** T. w. and s. s. cut 1c, Brunswick, to 20c and 22c, **Sept. 22.** These prices were published in the issue of Oct. 8.

S. O. Indiana—Q. D. A. at Detroit revised and put on same schedule as rest of territory, **Oct. 9.**

Several adjustments in gasoline and kerosine prices are made in this week's table, following the general 2c cut on Sept. 29. No definite information is at hand yet as to whether these adjustments were made on Sept. 29 or later. Points showing gasoline prices at variance with those shown in the issue of Oct. 8 are: Peoria, Indianapolis, South Bend, Saginaw, La Crosse, Des Moines, Sioux City and Huron.

S. O. Kentucky—S.s. only cut 2c, Jackson, to 17c, including 5c tax, **Oct. 11.**

Kerosine

S. O. New Jersey — Kerosine cut 0.3c, Norfolk, to 10c t. w., **Oct. 8.**

S. O. New York—Kerosine cut 2.4c, Manchester, to 10c, t. w., **Sept. 2.**

Atlantic Refining — Kerosine prices at Boston, Springfield, Worcester, Fall River and Providence were cut to 10c, **Sept 6.** Kerosine was cut 2c at Richmond to 10.7c t. w., **Sept. 24.** These prices were published in the issue of Oct. 8.

S. O. Indiana—Following the general 2c cut on Sept. 29, several adjustments in prices have been made, but no definite information is at hand as to whether the new prices published in this week's table were effective on Sept. 29 or some later date. These points show price adjustments over those published in last week's issue: Decatur, Joliet, Peoria, Quincy, South Bend, Kansas City and St. Joseph.

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Atlantic City, N. J.	12.5	2	14.5	16.5	11.5
Newark, N. J.	11.5	2	13.5	15.5	10.5
Annapolis	12	4	16	18	11
Baltimore, Md.	11.2	4	15.2	17.2	10.2
Cumberland, Md.	13	4	17	19	12
Washington, D. C.	11.7	2	13.7	15.7	10.7
Danville, Va.	12.8	5	17.8	19.8	11.8
Norfolk, Va.	11.3	5	16.3	18.3	10
Richmond, Va.	11.7	5	16.7	18.7	10.7
Roanoke, Va.	13	5	18	20	12
Petersburg, Va.	12.3	5	17.3	19.3	11.3
Charleston, W. Va.	12.5	4	16.5	18.5	11.5
Keyser, W. Va.	13.1	4	17.1	19.1	12.1
Parkersburg, W. Va.	11.2	4	15.2	17.2	10.2
Wheeling, W. Va.	12.4	4	16.4	18.4	11.4
Raleigh, N. C.	13.2	5	18.2	20.2	12.2
Charlotte, N. C.	13.3	5	18.3	20.3	12.3
Hickory, N. C.	13.6	5	18.6	20.6	12.6
Mt. Airy, N. C.	13.5	5	18.5	20.5	12.5
Salisbury, N. C.	13.5	5	18.5	20.5	12.5
Charleston, S. C.	11.3	6	17.3	19.3	10.3
Columbia, S. C.	13.2	6	19.2	21.2	12.2

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. New Jersey territory.

CONTINENTAL OIL

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Denver, Colo.	12	4	16	19	13.5
Pueblo, Colo.	13	4	17	20	13.5
Grand Junc., Colo.	16.5	4	20.5	23.5	17
Casper, Wyo.	13	4	17	20	12
Cheyenne, Wyo.	14	4	18	21	13.5
Butte, Mont.	14	5	19	22	18
Helena, Mont.	18.5	5	23.5	26.5	18
Salt Lake City, Utah	16.5	3½	20	23	17
Boise, Ida.	18.5	5	23.5	26.5	19
Twin Falls, Ida.	18.5	5	23.5	27.5	19
Albuquerque, N. M.	11	5	16	20	15

S. O. CALIFORNIA

	Gasoline Tax	Gasoline Posted Retail Price	Gasoline Wholesale	Oil T.W.
Phoenix, Ariz.	4	17	20	20
Los Angeles, Cal.	3	20.5	22.5	15.5
Fresno, Cal.	3	21	23	17
San Francisco, Cal.	3	21	23	15.5
Reno, Nev.	4	26	28	19
Portland, Ore.	4	22.5	24.5	16.5
Seattle, Wash.	3	21.5	23.5	16.5
Spokane, Wash.	3	25.5	27.5	20.5
Tacoma, Wash.	3	21.5	23.5	16.5

Note: 6c per gal. discount to dealers off posted wholesale price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only. This discount determines net t.w. price.

S. O. LOUISIANA

	Gasoline Posted Retail T.W.	Gasoline Tax	Gasoline Total Posted T.W.	Gasoline S.S.	Oil Posted Retail T.W.
Little Rock, Ark.	10	5	15	16	12
Alexandria, La.	11.5	*5	16.5	17.5	†13
Baton Rouge, La.	10.5	4	14.5	15.5	†13
Lake Charles, La.	11.5	*5	16.5	17.5	†13
New Orleans, La.	8.5	*5	13.5	14.5	†12
Shreveport, La.	10.5	4	14.5	15.5	†13
Lafayette, La.	11.5	*5	16.5	17.5	†13
Bristol, Tenn.	14	5	19	20	14
Chattanooga, Tenn.	13	5	18	19	13
Knoxville, Tenn.	12	5	17	18	15
Nashville, Tenn.	11	5	16	17	12.5
Memphis, Tenn.	10	5	15	16	12.5

Note: Discounts in S. O. La. territory: 2c per gal. off posted retail t.w. price to dealers and commercial consumers from the tankwagon; and 1c per gal. off s.s. price for cash paid at time of delivery at service stations.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 4c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

S. O. KENTUCKY

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Ashland, Ky.	13	5	18	20	15
Catlettsburg, Ky.	13	5	18	20	15
Lexington, Ky.	14	5	19	20	14.5
Louisville, Ky.	13	5	18	20	13
Covington, Ky.	14	5	19	21	14.5
Clarksdale, Miss.	14	5	19	21	12.5
Gulfport, Miss.††	15.5	5	20.5	22.5	13
Jackson, Miss.	12	5	17	17	13
Natchez, Miss.	14	5	19	21	13
Vicksburg, Miss.	14	5	19	21	13
Birmingham, Ala.‡‡	14	4	18	20	14.5
Mobile, Ala.‡	15	4	19	21	11.5
Montgomery, Ala.*	16	4	20	22	15
Atlanta, Ga.	15	6	21	22	†14.5
Augusta, Ga.	16	6	22	24	†15.5
Macon, Ga.	16	6	22	24	†13
Savannah, Ga.	14	6	20	22	†14
Jacksonville, Fla.	13	6	19	19	14
Miami, Fla.	15	6	21	23	14
Tampa, Fla.	14	6	20	20	13
Pensacola, Fla.**	14	6	20	21	13.5

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax.

S. O. NEBRASKA

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Omaha, Neb.	13.25	4	17.25	18.25	11.25
McCook	14.75	4	18.75	20.75	12.75
Norfolk	13.25	4	17.25	17.25	11.75
North Platte	14.75	4	18.75	20.75	12.50
Scottsbluff	13	4	17	17	12.25

Note: Discounts: 1c per gal. off tank wagon price of gasoline for 1,000 gallon dumps per month to consumers taking tank wagon delivery only.

S. O. INDIANA

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Chicago, Ill.	13	3	16	17	11
Decatur, Ill.	13.2	3	16.2	17	11
E. St. Louis, Ill.	12.4	3	15.4	16.4	10.2
Joliet, Ill.	13.4	3	16.4	17.4	11
Peoria, Ill.	13.4	3	16.4	15	11
Quincy, Ill.	13.2	3	16.2	17.2	10.8
Indianapolis, Ind.	12.9	4	16.9	17.9	12.2

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 3/50c on both.

Kerosine inspection fees only, per gallon: Iowa 7/100c; Michigan 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect Oct. 13, 1930, as Posted by Principal Marketing Companies

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Evansville, Ind.	13	4	17	18	12
South Bend, Ind.	12	4	16	17	12.2
Detroit, Mich.	13.8	3	16.8	14.3	12.7
Grand Rapids, Mich.	12.7	3	15.7	16.7	12.6
Saginaw, Mich.	13.9	3	16.9	14.5	12.8
Green Bay, Wisc.	13.6	2	15.6	16.6	11.4
Madison, Wisc.	13.3	2	15.3	16.3	11.1
Milwaukee, Wisc.	13.1	2	15.1	16	10.9
La Crosse, Wisc.	14.2	2	16.2	17.2	12
Minneapolis, Minn.	14	3	17	18	11.9
Duluth, Minn.	14.5	3	17.5	18.5	11.9
Mankato, Minn.	11	3	14	14	11.7
Des Moines, Ia.	12.5	3	15.5	16.5	11.3
Davenport, Ia.	13.5	3	16.5	17.5	11.3
Sioux City, Ia.	13.1	3	16.1	15.9	10.9
Mason City, Ia.	13.5	3	16.5	17.5	11.3
St. Louis, Mo.	*12.9	2	14.9	15.9	10.3
Kansas City, Mo.	†12.9	2	14.9	15.9	9.6
St. Joseph, Mo.	†13.5	2	15.5	11.9	10.1
Fargo, N. D.	15.9	3	18.9	19.9	13.9
Grand Forks, N. D.	16.2	3	19.2	20.2	14.2
Minot, N. D.	15.9	3	18.9	19.9	13.9
Pierre, S. D.	14	4	18	19	12.4
Huron, S. D.	13.5	4	17.5	17.5	12.7
Wichita, Kans.	11.8	3	14.8	14.8	9.8
Bartlesville, Okla.	11.5	4	15.5	18.5	11.5

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago, which see below) on tank truck deliveries of gasoline, figured from the service station price is 3c for 500 gal. or more a month; and 4½c for 75,000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 4c per gal. off service station price; over 1,000 gals. per month, 5c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio statewide	14	4	18	19	15
Preble County	14	4	18	18	15
Butler County	13	4	17	17	15
Summit County	10	4	14	14	15

Note: Discount on gasoline to dealers and commercial consumers generally thru Ohio is 2c per gal. off above t.w. prices. In counties where prices are below statewide schedule, discount is 3c per gal. off t.w. price.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

MAGNOLIA PETROLEUM

Muskogee, Okla.	11	4	15	18	9
Oklahoma City	10	4	14	17	10
Tulsa, Okla.	10	4	14	18	10
Fort Smith, Ark.†	10.5	4	14.5	15.5	12
Little Rock, Ark.	10.5	5	15.5	16.5	12
Texarkana, Ark.*	13	4	17	17	12
Dallas, Tex.	10	4	14	17	12
Fort Worth, Tex.	10	4	14	17	11
Houston, Tex.	11	4	15	19	11
San Antonio, Tex.	9	4	13	17	11
El Paso, Tex.	12	4	16	20	13

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City:					
Boroughs of Manhattan, Bronx, Queens & Kings	12.3	2	14.3	16.3	10
Borough of Richmond	13.7	2	15.7	17.7	11.7
Albany, N. Y.	13.6	2	15.6	17.6	12.6
Buffalo, N. Y.	12.8	2	14.8	16.8	9
Rochester, N. Y.	13	2	15	17	9
Syracuse, N. Y.	15.8	2	17.8	19.8	12.8
Boston, Mass.	12.5	2	14.5	16.5	10
Augusta, Me.	15.8	4	19.8	21.8	12.8
Manchester, N. H.	15.4	4	19.4	21.4	10
Burlington, Vt.	16.3	4	20.3	22.3	13.3
New Haven, Conn.	15.6	2	17.6	19.6	12.6
Providence, R. I.	12.7	2	14.7	16.7	10

Note: S. O. New York allows 3c off t.w. price to dealers in New York City, and 2c off t.w. price thru rest of territory.

ATLANTIC REFINING

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Pittsburgh, Pa.	15	*	15	20	12
Philadelphia, Pa.	15	*	15	20	12
Allentown, Pa.	15	*	15	20	12
Erie, Pa.	15	*	15	18	12
Scranton, Pa.	15	*	15	20	12
Altoona, Pa.	15	*	15	20	12
Dover, Del.	15	3	18	20	12
Wilmington, Del.	15	3	18	20	12
Boston, Mass.	14.5	2	16.5	18.5	10
Springfield, Mass.	15.5	2	17.5	19.5	10
Worcester, Mass.	15.3	2	17.3	19.3	10
Fall River, Mass.	12.1	2	14.1	15.1	10
Providence, R. I.	11.7	2	13.7	14.7	10
Hartford, Conn.	15.5	2	17.5	19.5	12.5
New Haven, Conn.	15.6	2	17.6	19.6	12.6
Atlantic City, N. J.	12.5	2	14.5	16.5	11.5
Camden, N. J.	11.6	2	13.6	15.6	10.6
Trenton, N. J.	12	2	14	16	11
Annapolis, Md.	12	4	16	18	11
Baltimore, Md.	11.2	4	15.2	17.2	10.2
Hagerstown, Md.	12.7	4	16.7	18.7	11.7
Richmond, Va.	11.7	5	16.7	18.7	10.7
Wilmington, N. C.	13.4	5	18.4	20.4	12.5
Brunswick, Ga.	14	6	20	22	**15
Jacksonville, Fla.	13	6	19	19	14

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics. Erie has dealer discount of 4c off t.w. price, effective May 28.

*3-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosine prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Sprits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.7	17
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**20.7	**22.2	**24
St. Louis	13.9	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.

**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)

New York harbor	11.00
Philadelphia district	11.00
Providence	11.50

Tank Wagon or Steel Barrels

New York City	15–16
Syracuse	17–18
Rochester	18
Buffalo	17–18
Providence	17–18
Boston	19
Bridgeport	16–18
Newark	14–15
Philadelphia	16–17
Baltimore	18

Note: 2c off above t.w. prices to large buyers in some instances.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Toronto	19.5	5	24.5	28	20.5
Ottawa	19.5	5	24.5	28	20.5
North Bay	22.5	5	27.5	33	27
Ft. William	22.5	5	27.5	31	22.5
Border Cities, including Windsor	18.5	5	23.5	27	19.5
MANITOBA					
Winnipeg	21	5	26	30	21.5
SASKATCHEWAN					
Regina	26	5	31	35	26
ALBERTA					
Edmonton	27.5	5	32.5	36	27.5
Calgary	23.5	5	28.5	32	23.5
BRITISH COLUMBIA					
Vancouver	23	5	28	32	24
QUEBEC					
Montreal	20.5	5	25.5	29	21.5
Quebec City	21.5	5	26.5	30	22.5
Three Rivers	21.5	5	26.5	30	22.5
NEW BRUNSWICK					
St. John	20	5	25	29	22
Moncton	20	5	25	29	22
NOVA SCOTIA					
Halifax	20	5	25	29	22
PRINCE EDWARD ISLAND					
Charlottetown	20	5	25	29	22

Note: In districts surrounding these points 1c additional is added to city price.

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect Oct. 13, 1930

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Newark, N. J.	17.4	*			17.4
Baltimore, Md.	16.2	4			20.2
Washington, D. C.†	18 0	2			20.0

*New Jersey road tax of 2c does not apply on aviation gasoline, exemption being claimed at time of purchase.

†Price at Washington is on Stanavo Aviation gasoline which sells at a ½c premium over "Standard" aviation gasoline.

S. O. OHIO

Thru Ohio	16	4	20

Discounts given by S. O. Ohio: For airport delivery only: 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c: 12,000 gals. and over per month, 3c; 24,000 gals. and over per month, 4c.

S. O. INDIANA

Chicago	17	3	20
Indianapolis, Ind.	17.2	4	21.2
Detroit, Mich.	17.8	3	20.8
Milwaukee, Wis.	17.1	2	19.1
Minneapolis, Minn.	18.2	3	21.2
St. Louis, Mo.	16.4	2½	18.9
Kansas City, Mo.	16.9	3	19.9
Fargo, N. D.	19.9	3	22.9
Huron, S. D.	18.3	4	22.3
Wichita, Kan.	15.8	3	18.8

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. St. Louis tax of 2½c includes ½c city tax and Kansas City tax includes 1c city tax.

S. O. LOUISIANA

New Orleans, La.	18	5	23
Nashville, Tenn.	20	5	25
Memphis, Tenn.	19	5	24

2c per gal. discount off above t.w. prices to dealers and commercial consumers.

S. O. NEBRASKA

Omaha	16.25	4	20.25

2c per gal. refund to resellers.

CONTINENTAL OIL CO.

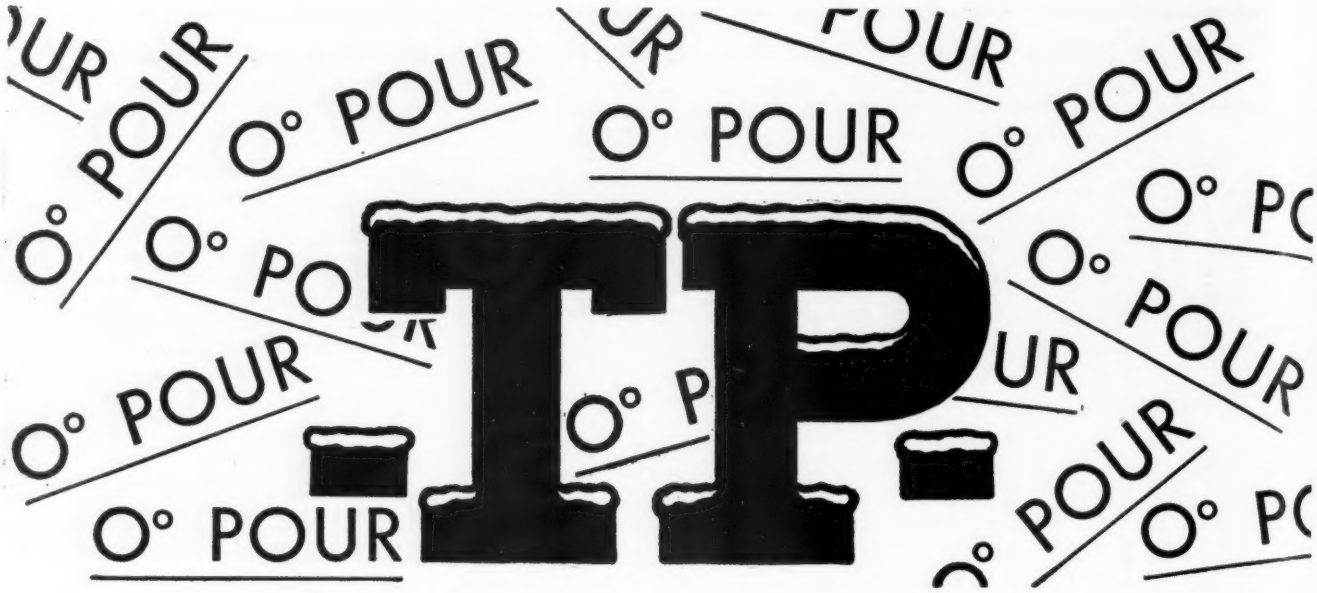
*Denver, Col.	15	4	19
Cheyenne, Wyo.	17	4	21
Helena, Mont.	24.5	5	29.5
Salt Lake City, Utah	19.5	3.5	23
†Albuquerque, N. M.	15	5	20
Boise, Ida.	21.5	5	26.5

*1c per gal. discount to dealers at Denver. †2c per gal. discount to dealers at Albuquerque.

S. O. CALIFORNIA

Phoenix, Ariz.	17	4	21
Los Angeles, Cal.	19.5	3	22.5
San Francisco, Cal.	20	3	23
Reno, Nev.	24	4	28
Portland, Ore.	19.5	4	23.5
Seattle, Wash.	19.5	3	22.5
Spokane, Wash.	23.5	3	26.5

4c per gal. discount off t.w. price of gasoline to customers taking tank truck delivery, through S. O. California territory, except 1c discount at Phoenix.



WINTER BRIGHT STOCKS

ZERO MAXIMUM POUR TEST

-TP- were the first zero pour test Bright Stocks offered to jobbers and blenders. They are 100% straight-run unblended pure paraffine base crude. The zero maximum pour test is positive proof that they are completely dewaxed.

Place orders now for your winter requirements.

GRADES

Stock No. 913W— 80/85 Viscosity at 210°
Stock No. 915W—120/125 Viscosity at 210°
Stock No. 917W—150/160 Viscosity at 210°

TEXAS PACIFIC COAL AND OIL COMPANY
FORT WORTH, TEXAS

Crude Oil Prices (in Effect Oct. 13, 1930)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Bradford—Allegheny district (posted by Tide Water Pipe Co., Ltd.) (Effective Sept. 18, 1930) 2.55

Penna. Grade Oil in National Transit Lines (Other Pennsylvania) (Effective Aug. 22, 1930) *2.30

Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania) (Effective Aug. 22, 1930) 2.25

Penna. Grade Oil in Eureka Pipe Lines (West Virginia) (Effective Aug. 22, 1930) ... 2.15

Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) (Effective Sept. 13, 1930) .. 1.90

Wayne district crude in Cumberland lines (West Virginia) (Effective July 23, 1930) ... 1.17

Corning Grade in Buckeye Pipe Lines (Ohio) (Effective July 19, 1930) 1.50

Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective July 23, 1930) 1.30

Somerset Oil in Eureka Pipe Lines (Effective July 23, 1930) 1.14

Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929) ... $0.60

*Oil run prior to July 1, 1929 is $2.25 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective July 25, 1930) $1.35

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon), effective April 16, 1930, same gravity and price schedule as Prairie posts in Oklahoma and Kansas, which see below.

(Posted by Pure Oil Co.)

Midland, Midland County (Aug. 21, 1930) ... $1.30

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$1.70	Princeton	$1.65
Lima	1.55	Illinois	1.65
Waterloo	1.20	Plymouth	1.23
Indiana	1.32	West Kentucky	1.55

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$1.95
Oil Springs	2.02

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma and Kansas)

Effective Apr. 10, 1930

Below 25	$0.75	35-35.9	$1.25
25-25.9	0.80	36-36.9	1.295
26-26.9	0.85	37-37.9	1.325
27-27.9	0.90	38-38.9	1.36
28-28.9	0.95	39-39.9	1.395
29-29.9	1.00	40-40.9	1.43
30-30.9	1.05	41-41.9	1.465
31-31.9	1.10	42-42.9	1.50
32-32.9	1.15	43-43.9	1.535
33-33.9	1.185	44 and above...	1.57
34-34.9	1.22		

(In North Texas: Ranger, Wichita Falls, Mexia)

Effective Apr. 10, 1930

Below 25	$0.72	30-30.9	$1.02
25-25.9	0.77	31-31.9	1.07
26-26.9	0.82	32-32.9	1.12
27-27.9	0.87	33-33.9	1.17
28-28.9	0.92	34-34.9	1.22
29-29.9	0.97	35-35.9	1.255
36-36.9	$1.29	41-41.9	$1.465
37-37.9	1.325	42-42.9	1.50
38-38.9	1.36	43-43.9	1.535
39-39.9	1.395	44 and above...	1.57
40-40.9	1.43		

The Texas Co., same schedule in Oklahoma as Prairie in Oklahoma; and in North Texas, North Central Texas and Central Texas same as Prairie and Humble in North Texas, effective Apr. 10.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Humble's prices in above fields same as Prairie's prices in North Texas, effective Apr. 10, which see.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Below 26	$0.70	28-28.9	$0.88
26-26.9	0.76	29-29.9	0.95
27-27.9	0.82	30-30.9	1.02

Rest of Magnolia schedule up to 44 and above same as Prairie in Oklahoma and Kansas.

Apr. 10, 1930, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in Winkler, Crane, etc., which see

Corsicana heavy	$0.80
Luling	0.85
Mirando	0.85
Darst Creek, 60° F. gravity	1.15

Carter Oil Co.

(Oklahoma and Kansas)

Apr. 10, 1930, same schedule as Prairie, which see.

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective Apr. 10, 1930

Hutchinson and Carson Counties:

Below 32	$0.775	38-38.9	$1.065
32-32.9	0.825	39-39.9	1.10
33-33.9	0.875	40-40.9	1.135
34-34.9	0.925	41-41.9	1.17
35-35.9	0.96	42-42.9	1.205
36-36.9	0.995	43-43.9	1.24
37-37.9	1.03	44 and above...	1.275

Gray County:

Below 29	$0.755	37-37.9	$1.16
29-29.9	0.805	38-38.9	1.195
30-30.9	0.855	39-39.9	1.23
31-31.9	0.905	40-40.9	1.265
32-32.9	0.955	41-41.9	1.30
33-33.9	1.005	42-42.9	1.335
34-34.9	1.055	43-43.9	1.37
35-35.9	1.09	44 and above...	1.405
36-36.9	1.125		

Wheeler County: Posted by Magnolia Pet. Co. Humble withdrew Wheeler county postings Apr. 10.

Below 30	$0.755	37-37.9	$1.11
30-30.9	0.805	38-38.9	1.145
31-31.9	0.855	39-39.9	1.18
32-32.9	0.905	40-40.9	1.215
33-33.9	0.955	41-41.9	1.25
34-34.9	1.005	42-42.9	1.285
35-35.9	1.04	43-43.9	1.32
36-36.9	1.075	44 and above...	1.355

Above prices met by The Texas Co. and Magnolia on Apr. 10.

WEST TEXAS AND NEW MEXICO

Humble Oil & Refining Co.

Effective Apr. 10, 1930

Winkler, Crane, Upton, Crockett, Ector, and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.65	31-31.9	$0.86
25-25.9	0.68	32-32.9	0.89
26-26.9	0.71	33-33.9	0.92
27-27.9	0.74	34-34.9	0.95
28-28.9	0.77	35-35.9	0.98
29-29.9	0.80	36 and above...	1.01
30-30.9	0.83		

Howard and Glasscock counties:

Effective Apr. 10, 1930

Below 25	$0.65	31-31.9	$0.82
25-25.9	0.68	32-32.9	0.84
26-26.9	0.71	33-33.9	0.86
27-27.9	0.74	34-34.9	0.88
28-28.9	0.76	35-35.9	0.90
29-29.9	0.78	36 and above...	0.92
30-30.9	0.80		

Apr. 10, 1930, The Texas Co. posted same prices in Crane, Upton, Winkler and Lea counties as Humble.

SOUTH AND SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Apr. 10, 1930

Mirando	$0.85
Salt Flat	1.15
Darst Creek	1.15
Pettus, Bee County (Effective Aug. 21)	1.15

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, and Sabine.

Effective Apr. 11, 1930

Below 28	$0.87	36-36.9	$1.29
28-28.9	0.92	37-37.9	1.325
29-29.9	0.97	38-38.9	1.36
30-30.9	1.02	39-39.9	1.395
31-31.9	1.07	40-40.9	1.43
32-32.9	1.12	41-41.9	1.465
33-33.9	1.17	42-42.9	1.50
34-34.9	1.22	43-43.9	1.535
35-35.9	1.255	44 and above...	1.57

Cotton Valley, Sarepta and Carterville below 36 gravity, $0.85. Rest of schedule same as Caddo, Homer, etc.

Smackover, below 24	$0.90
do 24 and above	1.05
Bellevue (Apr. 11, 1930)	1.15
*Urania, La. (Apr. 11, 1930)	0.95
†East El Dorado (Calion) (Apr. 11, 1930)	0.90

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Apr. 10, 1930, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.67; 25-25.9, $0.72; 26-26.9, $0.77; 27-27.9, $0.82.

Apr. 11, Magnolia met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Apr. 11, 1930

Below 28	$0.76	30-30.9	$0.91
28-28.9	0.81	31-31.9	0.96
29-29.9	0.86	32 and above...	1.01

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Apr. 10, 1930

Grades A	$1.15	34-34.9	$1.30
Grades B:		35-35.9	1.33
Below 25	1.00	36-36.9	1.36
25-25.9	1.03	37-37.9	1.39
26-26.9	1.06	38-38.9	1.42
27-27.9	1.09	39-39.9	1.44
28-28.9	1.12	40-40.9	1.46
29-29.9	1.15	41-41.9	1.48
30-30.9	1.18	42-42.9	1.50
31-31.9	1.21	43-43.9	1.52
32-32.9	1.24	44 and above...	1.54
33-33.9	1.27		

Refugio county

Below 25 ..... $0.85 (rest of schedule, same as Grades B, which see above).

25-25.9 ..... 1.03

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Humble, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only.

Specifications for Grade "A" crude: Gravity: 25° and below, at 60° F; Viscosity: not less than 100 seconds at 100° F. Saybolt.

Sulfur: not over .4%.

Grade "B" includes all Coastal crude which does not meet the test for "A" grades.

Oil—After 10 Years

LOUISVILLE—An oil well was brought in the week of Sept. 22 in Hart county, Ky. near the Barren county line, indicating a corniferous pool in western Kentucky, according to W. R. Jillson, Kentucky state geologist. The well is drilled through Devonian black shale and the strike was made at some 600 feet, the "Kentucky Petroleum Marketer," official bulletin of the Kentucky Petroleum Marketers Association, says.

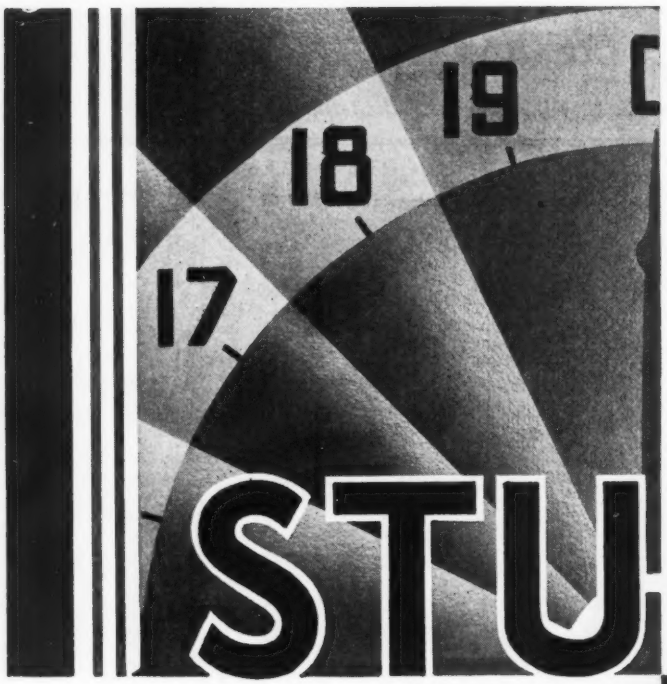
This strike is the result of 10 years of effort by producers to find a new sinking pool on the west side of the Cincinnati arch.

Wisconsin Jobbers Change Meeting

MADISON, WIS.—The meeting date of the Wisconsin Petroleum Association has been changed to Oct. 22. It will be held at the Loraine Hotel, Madison. It was formerly planned for Oct. 15 but conflicting hotel accommodations necessitated the change.

TULSA, Oct. 11.—E. J. (Newt) Nordstrom has been appointed special representative of the Superior Tube Co., Inc., for the Mid-Continent territory. His offices will be at general company headquarters in the Philtower at Tulsa.

Mr. Nordstrom is a former purchasing agent for the Empire Gas & Fuel Co. and was with Superior for two years at Dallas before entering the bond business. Superior represents several pipe manufacturers.



Pittsburgh Gasoline Meters are positive displacement, nutating piston meters and are . . .

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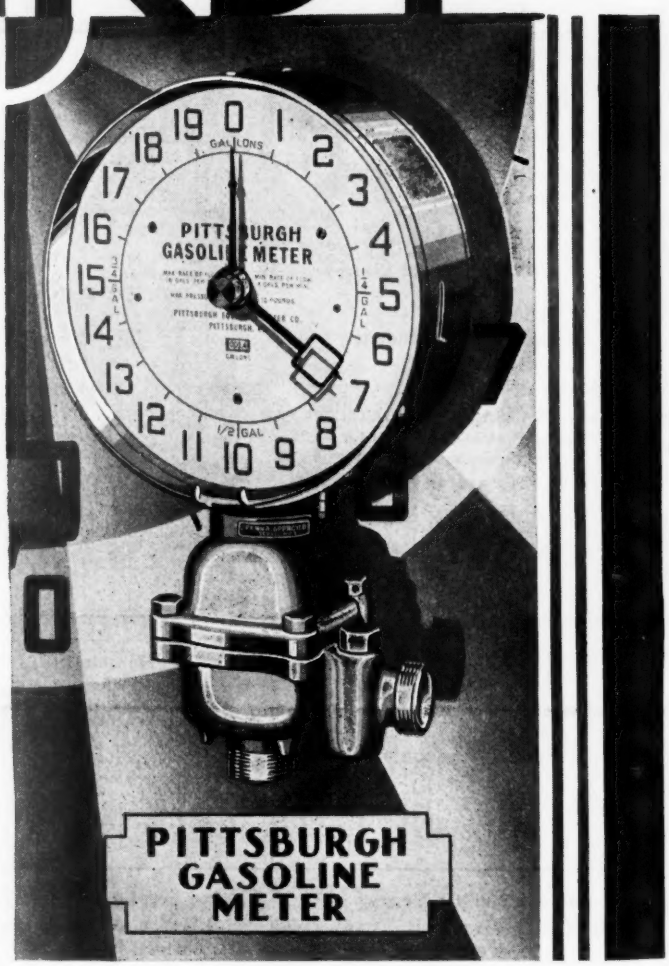
They must be, or the ones sold years ago would not still be giving unfailing service. Every part, from the husky bronze outer case to the finest gear or spindle, has been designed and made with one thought—it must do its work under any condition. Linked with this strudy design and construction is the modern equipment in the factory that produces these parts accurately. Don't forget that millions of this type meter are in service.



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Los Angeles, Calif.
Kansas City, Mo.

Crude Oil Prices (in Effect Oct. 13, 1930)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective Apr. 10, 1930

Grades A.....$1.15 *Grades B.....$1.00

*Grades B include all heavy crudes which do not meet tests for Grades A or for Grades B light crude. Prices for Grades B light crude are the same as Humble's, which see.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Apr. 10, 1930)

‡Salt Creek 29-29.9	$1.00
" " 30-30.9	1.05
" " 31-31.9	1.10
" " 32-32.9	1.15
" " 33-33.9	1.185
" " 34-34.9	1.22
" " 35-35.9	1.255
" " 36-36.9	1.29
" " 37 and above	1.325
Elk Basin	1.55
Grass Creek light	$1.55
Big Muddy	1.38
Lance Creek	1.63
Rock Creek	1.35
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.63
‡Cat Creek, Mont.	1.55
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.40
Artesia, N. Mex.	1.05

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

(Effective Sept. 15, 1930)

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach Inglewood* Olinda-Brea Canon*	Athens Rosecrans Dominguez	Elwood Terrace	Torrance Richfield	Whittier La Habra	Montebello	Coyote	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills Buena Vista Hills Lost Hills	Coalinga	Wheeler Ridge	‡Kettleman Hills	Orcutt (Santa Maria) (Union Oil Co.)	Santa Paula (Ventura) (Union Oil Co.)	Ventura Avenue (Associated Oil Co.)
14-14.9**	$0.70	....	....	$0.70	$0.70	$0.70	$0.70	....	$0.55	$0.55	$0.55	$0.55	....	$0.55	$0.70	$0.70
15-15.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	....	.55	.70	.70
16-16.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	$1.65	.55	.70	.70
17-17.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	for	.55	.70	.70
18-18.9	.76	....		.76	.76	.71	.76	....	.55	.62	.62	.62	55°	.65	.75	.76
19-19.9	.82	....		.82	.82	.77	.82	....	.55	.70	.70	.70	gravity	.70	.80	.82
20-20.9	.88	....		.88	.87	.83	.87	....	....	.78	.78	.78	and	.78	.85	.88
21-21.9	.94	....	F.o.b. ships	.94	.93	.90	.93	$0.92	....	.86	.86	.86	over	.90	.90	.91
22-22.9	1.00	....	....	1.00	.98	.97	.98	.95	....	.94	.94	.94	....	.95	.97	.94
23-23.9	1.07	....	....	1.07	....	1.05	1.04	1.01	....	1.02	1.02	1.02	....	1.02	1.05	1.00
24-24.9	1.12	1.12	....	1.12	....	1.08	1.08	1.05	....	1.06	1.04	1.04	....	1.08	1.07	1.05
25-25.9	1.17	1.17	....	1.17	....	1.11	1.12	1.09	....	1.10	1.06	1.06	....	1.11	1.09	1.10
26-26.9	1.22	1.22	....	1.22	....	1.15	1.16	1.13	....	1.14	1.08	1.08	....	1.15	1.12	1.15
27-27.9	1.26	1.27	....	1.26	....	1.19	1.21	1.18	....	1.18	1.11	1.10	....	....	1.16	1.19
28-28.9	1.30	1.32	....	1.30	....	1.23	1.25	1.23	....	1.23	1.15	....	....	....	1.20	1.23
29-29.9	1.34	1.37	....	†1.34	....	1.26	1.29	1.28	....	1.29	1.19	....	....	....	1.24	1.27
30-30.9	1.38	1.42	....	†1.38	....	1.29	1.33	1.33	....	1.35	1.23	....	....	....	1.29	1.31
31-31.9	1.43	1.47	....	....	....	....	....	1.38	....	1.41	1.27	....	....	....	1.34	1.36
32-32.9	1.48	1.52	....	....	....	....	....	1.43	....	1.47	1.31	....	....	....	1.40	1.41
33-33.9	....	1.57	....	....	....	....	....	1.48	....	1.53	1.35	....	....	....	1.46	1.47
34-34.9	....	1.62	1.32	....	....	....	....	1.53	....	††1.59	1.39	....	....	....	....	1.53
35-35.9	....	1.66	1.39	....	....	....	....	1.58	....	††1.65	1.43	....	....	....	....	1.59
36-36.9	....	1.72	1.46	....	....	....	....	1.63	....	....	....	....	....	....	....	....
37-37.9	....	1.78	1.53	....	....	....	....	1.68	....	....	....	....	....	....	....	....
38-38.9	....	1.84	1.60	....	....	....	....	1.73	....	....	....	....	....	....	....	....
39-39.9	....	1.90	1.66	....	....	....	....	1.78	....	....	....	....	....	....	....	....
40-40.9	....	1.96	1.72	....	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	2.02	1.78	....	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	2.08	1.84	....	....	....	....	....	....	....	....	....	....	....	....	....

*Inglewood prices run only to 28.9 gravity; Olinda-Brea Canon to 31.9 gravity.
†Richfield crude only. ††These two grades apply on Lost Hills only.
**Standard does not contract for crude testing below 14 gravity, but pays 45c per barrel when purchased.
‡Union Oil Co.'s prices on Kettleman Hills crude are, effective Sept. 15: 35-39.5, $1.10; 40-44.9, $1.20; 45-49.9, $1.35; 50-54.9, $1.50; and 55 and above, $1.65.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Oct. 13	Oct. 6
Soda Ash light 58% bags, cwt.	$1.32-$1.55	$1.55
Silicate of Soda 60 deg. drums, cwt.	$1.75-$1.90	$1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.80	$0.80
Silicate of Soda 40 deg. drums cwt.	$1.05	$1.05
Sal Soda wks.	$0.90-1.10	$0.90-1.10
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$12.50	$12.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks., lb.	2.40-2.45	2.40-2.45

Compounders' Supplies

	Oct. 13	Oct. 6
Vegetable Oils		
Linseed carloads, spot, lb.	9.80-10.00	9.80
Tanks, spot	9.40	9.20
Soya Bean, Tank, coast, lb.	8.00-9.00	8.00-9.00
Oleic Acid		
Distilled, tanks, lb.	8.00	8.00
Distilled, bbls., lb.	8.875	8.875
Saponified, tanks, lb.	8.50	8.50
Saponified, bbls., lb.	9.375	9.375
Lard Oils		
Prime Winter Strained, lb.	13.75	13.75
Extra Winter Strained, lb.	10.75	10.75
Extra, lb.	10.25	10.25
Extra No. 1, lb.	10.00	10.00
No. 1, lb.	9.75	9.75
No. 2, lb.	9.50	9.50
Tallow oil, lb.	9.25	9.25
Neatsfoot Oil		
Pure, bbls., lb.	12.00	12.00
Extra, bbls., lb.	10.25	10.25
No. 1 bbls., lb.	10.00	10.00
Cold Pressed, lb.	15.75	15.75
Fish Oils		
Menhaden Oil Light Pressed, gal.	45-47	45-47
Light Pressed, tank cars, N. Y., gal.	39-42	39-42
Yellow bleached, gal.	42-45	42-45
Whale, extra winter bleached, gal.	85	85
Naval Stores		
Steam, distilled turpentine, N. Y., gal.	38	38
Steam distilled turpentine, Savannah, gal.	36.25	36.25
Gum turpentine, N. Y., gal.	45	45
Gum turpentine, f.o.b. cars Savannah, gal.	38.75	38.75
Wood Rosin, N. Y., gal.	$5.15	$5.15
Wood Rosin F, Savn'h, bbl.	$4.76	$4.66
Gum Rosin B, N. Y. bbl.	$5.45	$5.45
Gum Rosin B, f. o. b. cars Savannah, bbl.	$4.20	$4.20
Rosin oil, pure, gal.	56	57
Rosin oil, compounded, gal.	50	50
Pine Tar		
Kiln burnt, bbl.	$13.00-14.00	$13.00-14.00
Retort, bbl.	$13.50-14.50	$13.50-14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	46-48	46-48

Oil Stocks and Finances

Ohio Standard Issues 5% Preferred

CLEVELAND, Oct. 13.—Standard Oil Co. of Ohio stockholders today approved retirement of the company's $7,000,000 7 per cent preferred stock and the issue of $12,000,000 of 5 per cent preferred stock.

The 7 per cent preferred will be retired Jan. 15, 1931, at 115 and accrued dividends. Money for the retirement will be provided by the issue of new preferred stock. The company will also get approximately $4,000,000 additional working capital from the new issue.

The new stock has been listed in the New York Curb Market and has been publicly offered at 103 and accrued dividends to yield more than 4.85 per cent. The underwriting syndicate consists of Chase Securities Corp., Bancamerica-Blair Corp., Hayden, Miller & Co., and Union Cleveland Corp.

In listing its new preferred stock the company reported its net earnings were $2,294,052 in the seven months ended July 31, 1930. In 1929 its net was $4,202,384 and the average net earnings the last 10 years was $3,625,017, President W. T. Holliday informed the banking syndicate.

The consolidated balance sheet of July 31, after giving effect to the new financing, showed net current assets of $12,794,366, or more than $100 per new preferred share. Net tangible assets were $41,115,279.

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Richfield Profits Fall; Omits Dividend

CLEVELAND, Oct. 10.—With a fall in earnings Richfield Oil Co. of California has omitted its common stock dividend due at this time. James A. Talbot, chairman, issued this statement, explaining action of directors:

"In the interest of conservatism and in light of present business conditions, the board of directors omitted the dividend on the common stock. This will permit building up of cash reserves and is in line with the policy adopted by a number of other large companies throughout the country."

Richfield in the first half of 1930 earned $360,608 after depletion, depreciation, abandonments, drilling expenditures and interest but before federal taxes. After dividends on preferred stock this sum was less than 1 cent a share on the common stock.

In a pamphlet report to stockholders Mr. Talbot pointed out that the Richfield Oil Corp. of New York had a net loss of $909,680 in the first half of this year after charging to expense more than $800,000 of non-recurring introductory expense.

The company's production has been held at approximately 30,000 barrels of crude oil and casinghead gasoline in compliance with the 45 per cent curtailment program in California. The curtailment and low prices is blamed for the low earnings. Restoration of better gasoline prices and an average of 11 cents a barrel less for crude oil in the third quarter will add several thousand dollars a month to the company's earnings, Mr. Talbot wrote.

Sinclair Seeks Bond Tenders

NEW YORK, Oct. 11.—Chase National Bank, trustee, has asked holders of Sinclair Consolidated Oil Corp. first lien collateral bonds to submit tenders at a price not exceeding principal amount and interest on or before Oct. 24. The bonds are due June 1, 1938. The trustee has $384,885 available in the sinking fund for retirement of the bonds. If this sum is not exhausted by tenders, bonds will be purchased at prices not exceeding principal and interest to Nov. 29.

Warner Quinlan Earnings Fall

NEW YORK, Oct. 11.—Warner Quinlan Co. reports net loss of $167,360 for first half of 1930, compared with net profit of $1,072,872 in first half of 1929.

Sun Issues Debentures For Gasoline Line

CLEVELAND, Oct. 11.—Sun Pipe Line Co. which is being organized under the laws of Delaware, has put on the market $3,500,000 of 10-year 5 per cent sinking fund gold debentures. The debentures are guaranteed by the Sun Oil Co., parent corporation. The price was 99¾ and interest to yield more than 5 per cent.

The Sun Pipe Line Co. will operate the pipe line being built from Marcus Hook, near Philadelphia, to Cleveland, O., and Syracuse, N. Y. The line will consist of 8-inch pipe from Marcus Hook to north of Coatesville, Pa., with 6-inch trunks to Cleveland and Syracuse. There will be several small branch lines.

The company's charter provides that the line shall transport petroleum and its products but it is the general understanding that it is being built primarily for gasoline.

The company's capital is $1,600,000, owned by Sun Oil Co.

Union Oil Co. Earnings Fall One Third

CLEVELAND, Oct. 11.—Union Oil Co. of California reports for the first nine months of 1930 net earnings of approximately $8,000,000 compared with $12,000,000 in the first nine months of 1929. Fall in profits was attributed to low prices for products and higher prices, since March, for crude oil.

The net for third quarter was approximately $2,850,000 after charges, or 65 cents a share, compared with $1.22 a share in the third quarter of 1929.

More stable conditions are gradually developing in our industry, the company states in its report. A strengthening factor is seen in the recent court decision upholding the conservation orders of Oklahoma authorities.

DALLAS—Texas Unity Oil Co. moved its Houston offices to 1102 Sterling Bldg., Houston. Headquarters remain at Dallas.

THE response to our announcement that the completion of our new and modern plant now permits our serving our old friends, has been very gratifying in that numbers of them are again on our ledgers but a portion of this increased capacity of VACUUM DISTILLED AND CENTRIFUGED BRIGHT STOCK, VISCOUS NEUTRALS, AND WARREN E STOCK is still open for early inquiries.

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LEADER TRUCK TANKS GROW OLD GRACEFULLY

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Transactions in Oil Shares on New York Stock Exchange

1929 High	1929 Low	1930 High	1930 Low	Listed Shares	Par Value	Company	Div. Rate	Last Paid	Transactions Week Ending Oct. 11 Sales	First	High	Low	Last	Change
42⅝	17½	42¼	20½	922,075	N.P.	Amerada Corp.	50cQ	July 31, 30	15,000	25	25½	22⅛	23	— 1⅜
64¾	12½	37	11	209,180	N.P.	American Republics Corp.	....	.....	4,200	14⅜	14½	†11	12¼	— 1¾
47¼	34½	51	32½	2,240,000	$25	Associated Oil.	50cQ	Sept. 30, 30	.....	.....	.....	.....	.....	.....
77⅞	30	51⅜	22⅝	2,683,868	25	Atlantic Refining Co.	‡25cQ	June 16, 30	61,100	28	28	†22⅝	25	— 3½
49⅛	20	34	15⅝	2,257,108	25	Barnsdall Corp. A.	50cQ	Aug. 6, 30	21,000	19¾	19¾	†15⅝	17⅞	— 2⅛
34½	25	35	28	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	.....	.....	.....	.....	.....	.....
32⅞	12½	20⅝	10½	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	9,000	12¼	12¼	†10½	10½	— 1¾
37⅝	18	30½	13	4,610,258	N.P.	Continental Oil (Delaware)	....	.....	5,600	14⅝	14⅝	†13	13⅜	— 1⅛
94¾	42¼	71⅛	30	410,857	$100	General Asphalt Co.	$1Q	Sept. 15, 30	16,500	36	36	†30	31¾	— 4¾
109	26	116⅞	51	250,000	100	Houston Oil.	....	.....	48,200	60⅝	60⅝	†51	54	— 7¼
39⅜	17¾	32	15⅝	1,379,295	N.P.	Independent Oil & Gas.	37½c	Oct. 2, 30	23,100	19⅝	19⅝	†15⅝	17⅛	— 3
53	13⅛	28⅜	6½	699,066	10	Indian Refining.	....	Dec. 15, 20	53,400	8¾	8¾	†6½	7½	— 1¼
51¼	11½	27¾	8⅛	568,816	10	do certificates.	....	.....	.....	.....	.....	.....	.....	.....
38⅜	16½	29½	21¼	3,994,150	N.P.	Lago Oil & Transport.	....	Aug. 2, 27	.....	.....	.....	.....	.....	.....
18	7	12	6⅜	1,187,701	N.P.	Louisiana Oil Refining.	....	.....	5,200	7¾	7¾	†6⅜	6½	— 1½
100¼	80	89½	78⅜	40,000	$100	do pfd.	$1.62½Q	Aug. 15, 30	.....	.....	.....	.....	.....	.....
18½	5⅞	10⅜	2⅛	330,000	N.P.	Maracaibo Oil Exploration.	....	.....	1,500	3	3	†2⅛	2½	— 1⅜
295	176	182	150	459,428	$100	Mexican Petroleum.	$3Q	July 31, 30	.....	.....	.....	.....	.....	.....
105	102	..	..	120,000	100	do pfd.	$2Q	July 31, 30	.....	.....	.....	.....	.....	.....
69⅜	9¼	37	15	1,244,383	N.P.	Mexican Seaboard Oil.	....	Oct. 15, 24	97,500	18	18⅝	†15	16½	— 1⅝
39⅞	22⅛	33	18	1,899,138	N.P.	Mid-Continent Petroleum.	50cQ	Aug. 1, 30	33,200	20⅝	20⅝	†18	19¼	— 1½
3⅝	¾	2½	¾	908,171	N.P.	Middle States Oil ctfs.	....	.....	.....	.....	.....	.....	.....	.....
..	..	32	17	6,708,086	N.P.	Ohio Oil Co.	50cQ	Sept. 15, 30	2,800	....	19½	†17	17½	— 2
69	40¼	64¼	48	1,000,000	$50	Pan American Petrol. & Trans.	....	Oct. 20, 27	300	51	51	†48	48	— 4½
69¼	40½	67½	47⅜	2,422,221	50	do B.	....	Oct. 20, 27	5,300	51	52	†47⅜	49½	— 2½
15¼	3	12¾	3⅛	199,370	N.P.	Panhandle Prod. & Refg.	....	.....	2,500	3¾	3¾	†3⅛	3½	— 1
76	47½	80	47½	25,666	$100	do pfd.		July 2, 23	.....	.....	.....	.....	.....	.....
..	..	27½	12⅝	2,937,900	N.P.	Petroleum Corp. of America.	37½cQ	Sept. 30, 30	37,500	15	15¼	†12⅝	12¾	— 2⅜
47	24¼	44¾	21	2,670,089	N.P.	Phillips Petroleum Co.	50cQ	Oct. 2, 30	73,700	26¼	26¼	†21	22¾	— 3¾
3⅜	1	2½	¾	1,184,917	$25	Pierce Oil Corp.	....	.....	4,800	1	1	¾	1	0
51½	20	52	17⅛	150,000	100	do pfd.	....	Feb. 1, 22	1,500	20⅛	20⅛	†17⅛	17¼	— 2¼
5⅞	½	7⅛	2¼	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....	16,600	3⅝	4	3⅛	3¼	— ½
65⅝	40½	54	22	2,435,670	$25	Prairie Oil & Gas Co.	50cQ	Sept. 30, 30	14,500	27½	27¾	†22	27	0
65	45	60	27⅞	4,050,000	25	Prairie Pipe Line Co.	‡75cQ	Sept. 30, 30	61,300	36⅛	36⅛	†27⅞	29¼	— 6¾
25⅞	4	31	4⅞	749,017	50	Producers & Refiners Corp.	....	Sept. 15, 30	1,100	5½	5½	†4⅛	4½	— ½
46¾	25½	38	25½	56,907	50	do pfd.		May 4, 25	300	25½	25½	†25½	25½	0
30¾	20	27¼	16⅜	3,038,370	25	Pure Oil Co.	37½cQ	Sept. 1, 30	24,000	17¾	18	†16⅛	16½	— 1¾
116	108	114¼	109½	130,000	100	do 8% pfd.	$2Q	Oct. 1, 30	280	110¾	110¾	109½	109¾	— 1
49⅝	22⅝	28¼	7½	2,891,735	25	Richfield Oil (California).	50cQ	Sept. 1, 30	200	8¾	8¾	8¾	8¾	0
42½	15	25¾	8⅝	1,235,270	N.P.	Rio Grande Oil Co.	50cQ	July 25, 30	15,600	10¾	10¾	8⅝	9	— 1¼
64	43⅛	56½	43¼	951,310	$13.40	Royal Dutch (N. Y. shares)	$1.875	Aug. 13, 30	19,400	45⅜	45⅜	†43¼	44	— 1⅞
55¾	43⅜	48⅜	37½	77,492	L2	Shell Trans. & Trading.	$1.453	July 28, 30	30	..	38	37½	37½	0
31¾	19	25½	10⅜	13,069,076	N.P.	Shell Union Oil Corp	35cQ	June 30, 30	35,700	12	12	†10⅛	10½	— 1¾
..	..	106¼	84	400,000	100	do pfd.	$1.37½Q	Oct. 1, 30	1,800	87⅛	87⅛	†84	84	— 3
40⅛	15	37	12¾	869,255	10	Simms Petroleum Co.	40cQ	June 14, 30	7,200	14¾	14¾	†12¾	12¾	— 2¼
45	21	32	15	5,455,665	N.P.	Sinclair Consolidated Oil Corp.	50cQ	July 15, 30	124,100	17⅛	17¼	†15	15⅞	— 1¼
111	103	112¼	108	154,685	100	do pfd.	$2Q	Aug. 15, 30	300	109¾	109¾	108	108	— 2¼
46½	42	42	20⅛	1,097,650	$25	Skelly Oil Co.	50cQ	Sept. 15, 30	17,700	23¾	23¾	†20⅛	20¼	— 3¾
..	..	99¾	78½	120,000	100	do pfd.	$1.50Q	Aug. 1, 30	800	81¼	81¼	†78½	78½	— 3
..	..	106	98	750,000	100	S. O. Export Corp. pfd.	$2.50S.A.	June 30, 30	800	106	106⅜	105¾	106	— ¼
81⅛	51½	75	52⅛	13,016,434	N.P.	S. O. California.	62½cQ	Sept. 15, 30	32,300	56¼	56¼	†52⅛	53	— 3¼
..	..	49	19	320,000	$25	S. O. Kansas.	50cQ	Sept. 15, 30	3,400	23½	24	†19	22½	— 1⅝
83	48	84⅛	55⅛	25,443,643	25	S. O. New Jersey.	‡25cQ	Sept. 15, 30	273,300	60⅜	61¼	†55⅛	56⅞	— 3⅜
48⅛	31¾	40⅝	26½	17,809,530	25	S. O. New York.	40cQ	Sept. 15, 30	67,700	29¼	29⅜	†26½	27	— 2⅝
86⅜	55	70	50	1,416,911	N.P.	Sun Oil Co.	25cQ	Sept. 15, 30	2,000	55	55	52	52¼	— 3¾
105½	100	107½	102½	100,000	$100	do pfd.	$1.50Q	Sept. 1, 30	260	107	107¼	106	106	— ⅝
24	5¼	9⅜	1½	1,026,979	N.P.	Superior Oil Corp.	....	.....	2,600	1⅞	1⅞	1½	1½	— ⅜
71⅞	50	60½	42⅞	9,850,724	$25	The Texas Corp.	75cQ	Oct. 1, 30	64,700	45⅛	46	†42⅞	44	— 1⅞
23⅞	9½	14½	6	929,947	10	Texas Pacific Coal & Oil.	s2½%	Dec. 31, 29	11,900	7¼	7⅜	†6	6¾	— ½
23½	10	17⅝	10	5,881,980	N.P.	Tide Water Associated Oil.	30cS.A.	Aug. 15, 30	31,500	10⅞	11	†10	10	— ⅞
90⅞	74⅛	89¾	74	732,550	$100	do pfd.	$1.50Q	Oct. 1, 30	1,000	86	78	†74	74	— 4⅛
40	14	31	15⅛	2,191,820	N.P.	Tide Water Oil Co.	20cQ	Sept. 30, 30	200	15¼	15⅜	†15⅛	15⅛	— 6⅛
97½	85⅛	94⅞	83	199,443	$100	do pfd.	$1.25Q	Aug. 15, 30	500	86	86	85⅛	85⅛	— ⅛
..	..	24	12¼	3,339,150	N.P.	Transcontinental Oil.	30c	May 1, 30	.....	.....	.....	.....	.....	.....
57	42⅛	50	28⅝	2,201,008	$25	Union Oil Co. (California)	‡50cQ	Aug. 9, 30	21,400	35⅜	35⅜	†28⅝	32	— 3⅞
..	..	38½	25½	1,254,048	N.P.	Union Tank Car Co.	40cQ	June 2, 30	1,100	25½	26½	25½	26½	+ ⅞
42⅞	15	27	7½	777,603	N.P.	Warner Quinlan Co.	25cQ	July 3, 30	18,000	8½	8½	†7½	7½	— 1
38	25	29½	26	490,000	N.P.	White Eagle Oil & Refg.	50cQ	Apr. 20, 30	.....	.....	.....	.....	.....	.....
29¾	12⅞	21	11	428,967	N.P.	Wilcox Oil & Gas Co.	....	May 10, 28	1,100	11¾	11¾	11	11	— ¼

*New high †New low ‡Also extra s-Stock Total sales 1,397,570

Swiss Oil, Expanding, Omits Dividend

CLEVELAND, Oct. 13.—Swiss Oil Corp. has omitted its dividend due at this time. Thomas A. Combs, president, said the company has paid from earnings more than half the purchase price of the Tri-State Refining Co., Kenova, W. Va., and producing properties in Kentucky where repressuring operations are under way. Funding of the unpaid part of the purchase price is contemplated before Jan. 15, 1931.

Mr. Combs informed stockholders he expected dividend payments would be resumed with the passing of the business depression and the resumption of higher crude oil prices. Earnings and reserves might warrant continuance of dividends, he said, were it not more prudent to conserve cash at this time.

Independent to Vote Dissolution

TULSA, Oct. 11.—Stockholders of Independent Oil & Gas Co. are to meet Nov. 8 at Tulsa to vote on dissolution of the company and distribution of its remaining assets. Independent has disposed of its major assets to Phillips Petroleum Co. on a stock exchange basis. The basis 10 shares of Independent stock for 7.6 shares of Phillips.

Paragon Provides Preferred Redemption

CINCINNATI, Oct. 11.—Paragon Refining Co. in its dissolution movement has set aside $2,004,809 for retirement of Class A preference shares at par, $50, and dividends to Oct. 15. There are 39,996 preference shares outstanding.

Pittsburgh Curb Market

Transactions Week Ended Oct. 10, 1930

	Sales	High	Low	Last	Change
Arkansas Gas A..	1,100	8¾	7⅛	7⅛	....

Pittsburgh Stock Exchange

Transactions Week Ended Oct. 10, 1930

	Sales	High	Low	Last	Change
Ark. Nat. Gas....	930	8¾	7½	7½	—1
do pfd.....	10	8	8	8	+⅛
Devonian Oil....	455	8	8	8	0
Leonard Oil.....	350	1	1	1	—⅛
Lone Star Gas....	25,175	34⅞	28¾	30	—3½
do pfd.....	185	106½	106	106½	+2½
Plymouth Oil....	2,015	24¾	23	23	—2
Phoenix Oil.....	5,200	.30	†.25	.25	—.05
Shamrock O & G..	2,405	14	10½	11¼	—1¾
Waverly Oil A....	100	15	†15	15	....
Wiser Oil.....	80	15½	15½	15½	0

†New low.

Final Arguments Made In Merger Case

OMAHA, Oct. 9—Government arguments against the proposed merger of the Vacuum Oil Co. and the Standard Oil Co. of New York were closed at Omaha Oct. 6. J. L. O'Brian, assistant attorney general, argued that the merger would violate the Sherman Anti Trust Act as well as parts of the Standard Oil Dissolution Decree of 1911.

Defense attorneys argued that the merger is a normal and logical business step to give Vacuum outlets for its lubricating oils. No decision is expected for several weeks.

N. P. N. Ownership Statement

Statement of the ownership, management circulation, etc., required by the Act of Congress of August 24, 1912, of National Petroleum News, published weekly at Cleveland, Ohio, for October 1, 1930, State of Ohio, County of Cuyahoga.

Before me, a notary public in and for the State and County aforesaid, personally appeared A. E. Kraft, who, having been duly sworn according to law, deposes and says that he is the business manager of The National Petroleum Publishing Company and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, The National Petroleum Publishing Company, Cleveland, Ohio; editor, Warren C. Platt, Cleveland, Ohio; managing editor, V. B. Guthrie, Cleveland, Ohio; and business managers are: A. E. Kraft, Cleveland, Ohio.

2. That the owners are: The National Petroleum Publishing Co., Cleveland, Ohio; Warren C. Platt, Cleveland, Ohio; Bess H. Platt, Cleveland, Ohio; A. W. Brobst, Cleveland, Ohio.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, other securities are None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holders appears upon the books of the company as trustees or in any other fiduciary relation, the names of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiants' full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

(Signed) A. E. KRAFT, Business Manager.

Sworn to and subscribed before me this 9th day of October, 1930.

(Signed) F. S. FRASER, Notary Public.

(My commission expires March 15th, 1932.)

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Standard Oil Stocks on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Outstanding Shares	Par Value	Companies	Div. Rate	Last Paid	Transactions Week Ended Oct. 11 Sales	First	High	Low	Last	Change
18¾	13½	18½	12¼	.....	£1	Anglo-Amer. Oil voting stk. ctfs..	36c	June 5, 29	.....	....	....	....	....	.....
17⅛	11	19	12	.....	£1	do non-voting stk. ctfs.....	36c	June 5, 29	.....	....	....	....	....	.....
2½	¾	1	⅜	500,000	N.P.	Atlantic Lobos Oil.....	....	.....	300	½	½	⅜	⅜	0
4⅛	1	1½	1	200,000	$50	do pfd.....	.....	.....	.....	....	....	....	....	.....
46½	25	25	14	40,000	25	Borne Scrymser Co.....	$1S.A.	Apr. 15, 30	.....	....	....	....	....	.....
74¼	55	69	51	200,000	50	Buckeye Pipe Line Co.....	$1Q	Sept. 15, 30	300	53	53	†51	51	— 2⅞
210	130	184⅞	120¼	120,000	25	Chesebrough Mfg. Co.....	‡$1Q	Sept. 30, 30	400	120¼	130	†120¼	130	+ ⅛
11¾	5⅝	7⅝	4½	.....	N.P.	Creole Petroleum Co.....	....	.....	24,200	4¾	5	†4½	4⅞	0
75¾	40	65¾	30½	30,000	$50	Cumberland Pipe Line Co.....	$1Q	June 16, 30	.....	....	....	....	....	.....
70½	42	54¾	35	50,000	100	Eureka Pipe Line Co.....	$1Q	Aug. 1, 30	100	35	35	†35	35	— 4
...	...	6¾	2½	280,000	N.P	Galena Oil Corp. w.i.....	....	.....	200	3½	3½	3½	3½	— ⅝
...	...	37¼	28	.....	N.P.	General Petroleum Corp. w.i.....	....	.....	.....	....	....	....	....	.....
128	74⅛	119	75	2,974,645	$25	Humble Oil & Refg. Co.....	50cQ	Oct. 1, 30	19,600	78¼	78½	†75	75	— 3⅜
41	22	30	16½	26,490,741	N.P.	Imperial Oil, Ltd.....	12½cQ	June 2, 30	18,800	19¾	19¾	†16½	18½	— 1⅜
42⅛	26	41	30	300,000	$10	Indiana Pipe Line Co.....	‡50cQ	Aug. 15, 30	400	31	31	30	30	0
29⅜	15	24	14	14,247,880	N.P.	International Petroleum Co.....	25c	June 16, 30	64,800	16½	16½	†14	14⅝	— 2⅛
25⅞	10½	22⅜	13¾	509,000	$12½	National Transit Co.....	25cQ	June 16, 30	2,000	15½	15½	†13¾	14⅜	— 1⅛
17¾	10	21	10⅛	100,000	10	New York Transit Co.....	40cQ	July 15, 30	600	11⅞	12⅛	11⅛	11¾	— 1⅛
63	41	54	30⅜	40,000	50	Northern Pipe Line Co.....	$2S.A.	July 1, 30	200	30⅝	30⅝	†30⅛	30⅛	— ⅜
105½	103¾	108	103	600,000	100	Ohio Oil pfd.....	$1.50Q	June 14, 30	200	105½	106	105½	106	+ ½
44½	18⅝	32	17	400,000	25	Penn Mex. Fuel Co.....	$1	May 20, 30	9,900	20⅛	20⅛	20	20	— ⅛
50	29	33	10⅜	160,000	25	Solar Refining Co.....	$1.25S.A.	Dec. 20, 29	100	10½	10½	10½	10½	— ⅜
23½	13	20⅛	10	100,000	10	Southern Pipe Line Co.....	$5	Sept. 2, 30	.....	....	....	....	....	.....
60¼	35⅜	45⅞	25	1,200,000	25	South Penn Oil Co.....	50cQ	Sept. 30, 30	3,400	32	32	25½	29	— 5
70	45	64	44	35,000	50	Southwest Pa. Pipe Lines.....	$1Q	Oct. 1, 30	.....	....	....	....	....	.....
63	45	59⅞	41	16,850,587	25	S. O. Indiana.....	62½cQ	June 16, 30	57,600	45½	45½	†41	42¾	— 2⅝
46⅞	29	40½	26	2,577,124	10	S. O. Kentucky.....	40cQ	June 30, 30	10,600	28	28¾	†26	26⅝	— 1⅜
50¼	40	48⅞	44¼	188,159	25	S. O. Nebraska.....	‡62½cQ	June 20, 30	200	45⅜	45¾	45⅜	45⅜	— ⅜
129	60	108½	64	560,000	25	S. O. Ohio.....	62½cQ	Oct. 1, 30	300	64⅞	64⅞	†64	64	— ¾
...	...	...	...	120,000	100	do 5% pfd.....	.....	.....	200	103½	103½	103	103½	0
124½	113½	122	115¼	70,000	100	do 7% pfd.....	$1.75Q	Sept. 2, 30	300	116⅛	116⅞	116	116¾	+ ½
18	5⅛	10	5	34,158	25	Swan Finch Oil Corp.....	....	Jan. 15, 29	.....	....	....	....	....	.....
133¾	75⅛	97⅞	65⅛	5,139,887	25	Vacuum Oil Co.....	$1Q	June 20, 30	20,600	72¼	72¼	†65⅛	66½	— 5⅜

*New high †New low ‡Also extra

Independent Oils on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Par Value	Companies	Transactions Week Ended Oct. 11 Sales	First	High	Low	Last	Change
.72	⅛	⅝	⅛	$1	Amer. Contr. Oilfields	.....	....	....	....	....	.....
8⅝	1⅛	4½	1½	5	Amer. Maracaibo.....	6,800	1¾	1¾	†1¼	1⅜	— ⅛
4¾	1	1⅜	1⅛	10	Argo Oil.....	.....	....	....	....	....	.....
26	3¾	16¾	7⅛	N.P.	Arkansas Nat. Gas...	12,600	8⅝	8⅝	†7⅛	7⅞	— 1
24¾	6½	16⅜	7⅛	N.P.	do Class A.....	48,700	8⅝	8⅝	†7⅛	7⅞	— 1
9	4	8⅛	7⅝	10	do pfd.....	1,000	8	8	7⅞	7⅞	— ⅛
70	50	28½	17	N.P.	British American Oil..	.....	....	....	....	....	.....
4⅞	⅞	2¾	¾	¼	Carib Syndicate.....	5,700	1⅛	1⅛	1⅛	1⅛	+ ¾
68½	20	44¼	22¼	N.P.	Cities Service.....	316,100	26⅝	26	†22¼	24½	— 2⅜
99¼	84	93⅞	52	100	do pfd.....	1,200	91¼	91⅝	90⅞	91¼	0
9¼	8	9	7⅝	10	do pref. B.....	100	8¼	8¼	8¼	8¼	0
96	81	89⅞	82	100	do pref. BB.....	100	83¼	83¼	83¼	83¼	+ 1⅜
1½	⅛	⅝	⅛	1	Colombia Syndicate..	2,900	⅛	⅛	⅛	⅛	— ⅛
15	3⅞	8¼	2⅝	N.P.	Colon Oil Corp.....	4,200	3⅛	3⅛	†2⅝	2½	— ⅝
...	...	21	5¾	N.P.	Columbia Oil & Gas..	9,900	8¾	8¾	7¼	7¾	— 1⅛
11⅜	2½	5⅞	2	10	Consolidated Royalty	1,100	3¼	2⅛	†2	2	— 3
135	42	74¾	5¼	N.P.	Cosden Oil Co.....	7,800	9¾	9¾	†5¼	8	— 1⅝
87	55	70	15½	100	do pfd.....	100	19¾	20⅛	19¼	19¼	— 5
2½	¼	1	¼	N.P.	Crown Central Pet...	800	¼	¼	¼	¼	0
11⅛	4	...	...	N.P.	Crystal Oil.....	.....	....	....	....	....	.....
51⅛	51¼	...	...	100	do pfd.....	.....	....	....	....	....	.....
26	6½	13½	6⅛	N.P.	Darby Petroleum.....	400	7½	8	7½	8	+ ½
...	...	21¾	21½	N.P.	do new.....	.....	....	....	....	....	.....
11	2	11	4½	N.P.	Derby Oil & Refg.....	8,300	5¾	6⅜	4¾	5	— ¾
44	17	60	30	N.P.	do pfd.....	50	42	42	42	42	— 8
...	...	12	12	10	Devonian Oil.....	.....	....	....	....	....	.....
209	115	166⅞	90	$25	Gulf Oil Corp.....	16,500	98½	98½	†90	91¼	— 8
7½	1⅜	4	2¼	N.P.	Homaokla Oil.....	.....	....	....	....	....	.....
...	...	47½	24⅝	N.P.	Indian Territory A....	12,900	26¾	28⅞	†24⅝	28	+ 1¼
...	...	53½	24⅝	N.P.	do B.....	6,800	26¾	28	†24⅝	28	+ 1⅛
2⅞	⅜	1¾	½	10	Intercontinental Pet..	8,800	⅝	⅝	½	½	0
3⅝	1¼	3	1⅜	N.P.	Kirby Petroleum.....	1,900	1½	1½	†1⅛	1⅛	— ½
6½	1	4¾	1	N.P.	Leonard Oil & Dev...	9,700	1⅛	1⅛	1	1⅛	0
38⅞	18	29	9½	N.P.	Lion Oil Refg.....	19,600	13⅛	13⅛	†9½	10¼	— 2⅞
67⅞	28	55⅛	28⅝	N.P.	Lone Star Gas.....	14,600	33	33	†28⅝	30	— 4
...	...	31	17	$25	MacMillan Petrol....	.....	....	....	....	....	.....
2⅞	¼	½	⅛	1	Magdalena Synd.....	1,900	⅛	⅛	⅛	⅛	0
38½	14	16	6	N.P.	Margay Oil.....	.....	....	....	....	....	.....
6⅜	2¼	7½	2	N.P.	Mexico Ohio Oil.....	700	2½	2½	2½	2½	0
...	...	11⅞	4¼	N.P.	Middle States A v.t.c.	2,100	4½	5⅛	†4¼	4¼	— 1⅛
...	...	6	1¼	N.P.	do Class B v.t.c...	1,800	2⅛	2⅛	†1¼	1¾	— ⅜
42	8	36¼	10	5	Missouri-Kansas P.L.	36,900	14¼	14⅞	†10	11	— 3½
1½	¼	¾	⅜	1	Mountain & Gulf Oil..	.....	....	....	....	....	.....
22⅞	7	12⅜	7	10	Mountain Producers..	8,800	7½	7½	†7	7⅛	— ¼
43⅞	24	41⅜	25⅛	N.P.	Nat. Fuel Gas.....	14,400	28⅛	28⅞	27⅛	28⅞	+ 1¾
5	2¼	3½	2	$5	New Bradford Oil...	800	2¼	2¼	†2	2	— ⅜
4¾	3⅛	3⅛	2⅜	10	New England Fuel...	100	2⅝	2⅝	2⅝	2⅝	+ ⅛
24½	11⅜	16⅞	4½	25	N. Y. Pet. Royalty...	200	6½	6½	†4½	5	— 3⅝
18½	6⅛	11¼	4½	N.P.	North Central Texas	200	4⅝	4⅝	†4½	4½	— 1½
19¼	8⅛	11⅝	6⅜	N.P.	Oilstocks Ltd. A.....	700	6⅞	6⅞	†6⅜	6⅞	— ⅜
18¾	8½	11½	8½	N.P.	do B.....	500	8½	8½	8½	8½	0
26⅜	12⅛	19½	12½	N.P.	Pacific Western Oil...	1,000	13½	14	13¼	13⅝	+ ⅛
3½	½	2½	¼	N.P.	Pandem Oil.....	3,800	⅛	⅜	⅛	⅜	+ ⅛
10½	2¼	4⅜	1⅜	N.P.	Pantepec Oil.....	900	2	2⅛	1¾	1¾	— ⅜
25½	13⅛	15	13⅛	$25	Paragon Refg. B. ctfs.	.....	....	....	....	....	.....
28	17	29	19⅛	N.P.	Petroleum Corp.....	.....	....	....	....	....	.....
...	...	5⅞	1⅜	...	do warrants.....	1,200	2	2	†1⅛	1⅛	— 1⅛
37	22	27½	20⅛	N.P.	Plymouth Oil.....	200	24⅞	24⅞	23	23	— 1⅜
16	9	10½	8	$5	Red Bank Oil.....	.....	....	....	....	....	.....
8½	1⅜	5⅜	2⅛	N.P.	Reiter-Foster Oil.....	1,100	2⅜	3	2¼	2¼	— 1½
25¼	19	23½	9¾	25	Richfield Oil pfd....	100	12½	12½	12	12	— ½
29	13	25	6	N.P.	Root Refining pr. pfd.	300	7	7	†6	6	0
11	3	8⅝	2⅛	N.P.	Ryan Consolidated...	400	2⅝	2⅝	2⅝	2⅝	0
5⅞	1⅜	2½	1⅜	10	Salt Creek Consol....	200	1¾	1¾	1⅝	1⅝	+ ⅛
25⅞	9	15¼	8	10	Salt Creek Producers.	1,500	9½	9½	8	8⅜	— ⅜
33⅛	10	8	5⅝	25	Shreveport El Dorado	.....	....	....	....	....	.....
...	...	39⅛	39	25	Signal Oil & Gas A...	.....	....	....	....	....	.....
24	9	17	7¼	N.P.	Southland Royalty...	21,500	7¾	11⅞	7¾	8¼	+ ¾
12	4	10	3⅞	5	Sunray Oil.....	1,400	4⅛	4⅛	3⅞	4	— ⅛
23	7⅛	19½	8⅜	N.P.	Texon Oil & Land....	1,000	11⅞	12	11⅛	11⅛	— ⅛
81⅛	8⅞	16	8	10	Venezuela Mexico....	.....	....	....	....	....	.....
6½	1⅛	4½	1¾	5	Venezuela Petroleum.	4,700	2⅛	2⅛	1⅝	1¾	— ⅛
9⅛	2	5	2	1	Woodley Petroleum..	1,100	3¾	3¾	3⅛	3⅛	— ⅞
5⅜	¼	2½	½	N.P.	Y Oil & Gas.....	.....	....	....	....	....	.....

*New High †New Low

New York Bonds

Week Ending Oct. 10

	High	Low	Last	Change
Asso. Oil gold 6s.....	103⅜	103	103¼	— ⅛
Atlantic Refg. deb. 5s...	102½	101⅜	102½	+ ⅛
Cal. Pet. 5s.....	99¾	98⅞	98⅞	—1
Cal. Pet. 5½s.....	102½	101⅜	102	— ⅛
General Pet. 5s.....	102¾	102½	102½	— ⅛
Humble Oil & Refg. 5s..	103	102¼	103	+ ⅜
Humble Oil & Refg. 5½s	102½	102	102½	0
Pan Amer. P & T 6s.....	103⅜	102¼	102¼	— ½
Phillips Pet. 6⅛s.....	95¼	94	95¼	+ ⅛
Pierce Oil deb. 8s.....	106	106	106	0
Pure Oil 5½s.....	99⅝	97⅞	97¾	— ½
Pure Oil 5½s.....	99⅜	97	98	— ⅜
Richfield Oil Calif. 6s...	76	73½	76	+1
Shell Union Oil 5s.....	91¾	86⅜	87	—4⅜
Shell Union 5s with war..	94	87	89	—5
Sinclair Con. Oil 7s.....	104⅜	102	102½	—1⅜
Sinclair Con. Oil 6½s...	103⅜	100⅜	100¾	—2⅝
Sinclair Con. Crude 5½s.	102	100⅛	101	—1
Sinclair Pipeline 5s.....	102⅛	100	100½	—2
Skelly Oil 5½s.....	96⅜	94⅞	95½	—1⅛
S. O. N. J. 5s.....	104½	103¾	104¼	— ⅜
S. O. N. Y. 4½s.....	100½	100	100	— ⅛
Transcontinental Oil 6½s War.....	109⅞	109⅞	109⅞	0
Transcontinental Oil 6½s Ex-war.....	100⅛	100	100	—1⅜
Union Oil of Calif. 5s C..	101⅜	100	100	—1⅜
Union Oil of Calif. 5s War.	99⅛	98⅞	98⅞	— ¾
Warner-Quinlan 6s.....	76¾	73½	73½	—3
White Eagle Oil 5½s....	103½	102⅜	102⅜	— ⅞

New York Curb Bonds

Week Ending Oct. 10

	High	Low	Last	Change
Beacon Oil 6s '36.....	99¼	99	99	+1
Cities Serv. 5s '66.....	84	83⅜	83⅜	— ⅞
Cities Serv. 5s '50.....	98⅛	88⅜	92⅝	—6
Cities Serv. G. 5½s '42..	92⅜	89	90¾	+ ¾
Cont. Oil 5¼s '37.....	97¾	97½	97⅝	+ ⅛
Empire O & R 5½s '42..	89	87	87	—1
Gulf Oil 5s '37.....	103	102	102	—1
Gulf Oil 5s '47.....	103⅞	102¼	102½	—1
Indep. Oil 6s '39.....	101⅞	100	101	—1
Sun Oil 5½s '39.....	102½	102	102½	+ ¼
Valvoline Oil 7s '37.....	102¾	102⅛	102⅛	— ¼

Oil Dividends

	Amount	Stock of Record Payable	
Oilstocks Ltd. A & B....	12½c	Nov. 15	Oct. 31
Tide Water pfd. q.....	$1.25	Nov. 15	Oct. 17
Union Of California q...	50c	Nov. 10	Oct. 18
do stock.....	1%	Nov. 10	Oct. 18